amateur radio

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

VOL. 46, No. 12 DECEMBER 1978

SPECIAL NOVICE ISSUE

COVER PHOTO

Michael Goard VK2ZNV operating portable at the amateur radio week-end held at Katoomba in July, and organised by the WIA Education Service incorporating the Youth Radio Service. Sixty newcomers were introduced to amateur radio.

Registered for posting as a Publication — Category "B".

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MODEL MC-310 TRANSCEIVER
SPECIFICATIONS:
Translators, 13; channel number, 3, on 26 MHz Citizens Band; transmitter frequency tolerance, ±0.005 per cent; RF input power, 1 Watt; tone call frequency, 2000 Hz; receiver type, superheterodyne; receiver sensitivity, 0.7 uV at 10 dB S/N; selectivity, 45 dB at ±10 kHz; IF frequency, 455 kHz; audio output, 500 mW to external speaker jack; power supply, 8 UM-3 (penlite battery); current drain, transmitter — 120-220 mA, receiver — 20-130 mA; accessory, shoulder strap, battery UM-3, 8pcs, instruction manual.

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Belling Lee Plugs	75c
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$385.00

MAIL ORDERS WELCOMED. Please allow pack and post on items listed on this page. If further information required send a stamped SAE for immediate reply from the above address. Larger items can be sent F.O.B. Due to circumstances beyond our control, prices quoted in this advertisement are subject to alteration without notice.

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Enquiries and material to:
The Editor,
PO Box 2611W, GPO Melb., 3001

Copy is required by the **first of each month.** Acknowledgement may not be made unless specially requested. All important items should be sent by certified mail. The editor reserves the right to edit all material, including Letters to the Editor and Hamads, and reserves the right to refuse acceptance of any material, without specifying a reason.

Advertising: Material should be sent direct to **P.O. Box 150, Toorak, Vic., 3142, by the 25th of the second month preceding publication. Phone: (03) 24 8552.**—Hamads should be sent direct to **P.O. Box 150, Toorak, Vic., 3142, by the 1st of the month preceding publication.**

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amateur radio

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TECHNICAL

GENERAL

DEPARTMENTS

WIRELESS INSTITUTE OF AUSTRALIA

Federal President: Dr. D. A. Wardlaw VK3ADW

Federal Council:
VK1 Brig. R. K. Roseblade VK1QJ
VK2 Mr. T. I. Mills VK2ZTM
VK3 Mr. J. Payne VK3AED
VK4 Mr. N. F. Wilson VK4NP
VK5 Mr. I. J. Hunt VK5QX
VK6 Mr. N. R. Penfold VK6NE
VK7 Mr. P. D. Frith VK7PF

Staff: Mr. P. B. Dodd VK3CIF, Secretary.
Part-time: Col. C. W. Perry, Mrs. J. M. Seddon and Mr. P. Simmons (AR advertising).

Executive Office: P.O. Box 150, Toorak, Vic., 3142. 2/517 Toorak Rd., Toorak, Ph. (03) 24 8652.

Divisional information (all broadcasts are on Sundays unless otherwise stated):

ACT:
President — Mr. E. W. Howell VK1TH
Secretary — Mr. Ted Radclyffe VK1TR
Broadcasts— 3570 kHz & 146.5 MHz: 10.00Z.

NSW:
President — Mr. D. S. Thompson VK2BDT
Secretary — Mr. T. I. Mills VK2ZTM
Broadcasts— 1825, 3595, 7146 kHz, 28.47, 52.1, 52.525, 144.1, Ch. 8 and other relay stations: 01.00Z. (Also Sunday evenings 09.30Z and Hunter Branch, Mondays 09.30Z on 3570 kHz and ch. 3 and 6).

VIC.:
President — Mr. E. J. Buggee VK3ZZN
Secretary — Mr. J. A. Adcock VK3ACA
Broadcasts— 1825, 3600, 7135 kHz — also on 6m, 2m SSB and 2m Ch. 2 repeater: 09.30Z.

QLD.:
President — Mr. A. J. Aarsse VK4QA
Secretary — Mr. W. L. Giella VK4ABG
Broadcasts— 1825, 3580, 7146, 14342, 21175, 28400, kHz; 2m (Ch. 42, 48): 09.00 EST.

SA:
President — Mr. C. J. Hurst VK5HI
Secretary — Mr. C. M. Pearson VK5PE
Broadcasts— 1820, 3550, 7095, 14175 kHz; 28.5 and 53.1 MHz, 2m (Ch. 8): 09.00 S.A.T.

WA:
President — Mr. L. A. Ball VK6AN
Secretary — Mr. P. Savage VK6NCP
Broadcasts— 3600, 7080, 14100, 14175 kHz, 52.656 and 2m (Ch. 2): 01.30Z.

TAS.:
President — Mr. I. Nicholls VK7ZZ
Secretary — Mr. M. Hennessy VK7MC
Broadcasts— 3570, 7130 kHz: 09.30 EST.

NT:
President — Dick Klose VK8ZDK
Vice-Pres. — Barry Burns VK8DI
Secretary — Graeme Challinor VK8GG
Broadcasts— Relay of VK5WI on 3.55 MHz and on 146.5 MHz at 2330Z. Slow morse transmission by VK8HA on 3.555 MHz at 1000Z almost every day.

Postal Information:
VK1 — P.O. Box 46, Canberra, 2600.
VK2 — 14 Atchison St., Crows Nest, 2065 (Ph. (02) 43 5795 Tues & Thurs (10.00-14.00h).
VK3 — 412 Brunswick St., Fitzroy, 3065 (Ph. (03) 41 3535 Sat 10.00-12.00h).
VK4 — G.P.O. Box 638, Brisbane, 4001.
VK5 — G.P.O. Box 1234, Adelaide, 5001 — HQ at West Thebarton Rd., Thebarton (Ph. (08) 254 7442).
VK6 — G.P.O. Box N1002, Perth, 6001.
VK7 — P.O. Box 1010, Launceston, 7250.
VK8 — (incl. with VK5), Darwin AR Club, P.O. Box 37317, Winnellie, N.T., 5789.

Slow morse transmissions — most week-day evenings about 09.30Z onwards around 3550 kHz.

VK QSL BUREAUX

The following is the official list of VK QSL Bureaux, all are inwards and outwards unless otherwise stated.

VK1 — QSL Officer, G.P.O. Box 1173, Canberra, A.C.T. 2601.
VK2 — QSL Bureau, C/- Hunter Branch, P.O. Teralba, N.S.W. 2284.
VK3 — Inwards QSL Bureau, Mr. E. Trebilcock, 340 Gillies Street, Thornbury, Vic. 3071.
VK3 — Outwards QSL Bureau, Mr. R. R. Prowse, 63 Brewer Road, Bentleigh, Vic. 3204.
VK4 — QSL Officer, G.P.O. Box 638, Brisbane, Qld., 4001.
VK5 — QSL Bureau, Mr. Geo. Luxon VK5RX, 203 Belair Road, Torrens Park, S.A. 5062.
VK6 — QSL Bureau, Mr. J. Rumble VK6RU, G.P.O. Box F319, Perth, W.A. 6001.
VK7 — QSL Bureau, G.P.O. Box 371D, Hobart, Tas. 7001.
VK8 — QSL Bureau, C/- VK8HA, P.O. Box 1418, Darwin, N.T. 5794.
VK9, 0 — Federal QSL Bureau, 23 Landale Street, Box Hill, Vic. 3128.

QSP

NORTH POLE AMATEUR

The first person ever to make it to the North Pole alone is a radio amateur . . . and amateur radio helped to make the achievement possible!

Naomi Uemura JG1QFW, who encountered marauding polar bears and other hazards along the way, reached his destination at the top of the world by dog sled on May 1, 1978. Working in close co-operation with the operators of VE8RCS, at Alert, Northwest Territory, and a nearby base camp station manned by another Japanese amateur, Yuko Tada JG1FOA, members of the National Capitol DX Association of Washington, DC, maintained daily schedules in support of the expedition over a 59-day period without a miss. Traffic handled for the expedition included weather forecasts, messages dealing with broken equipment and arrangements for re-supply flights. After a few days on the ice at the North Pole, Naomi returned to Alert by air, visited VE8CRS and took part in one of the schedules from there. He spoke with expedition supporters, received congratulations from dignitaries around the world, worked each member of the NCDXA who had participated in the series of schedules, and generally livened up 20 metres.

From IARU R2 News, August 1978. ■

MESSAGES THROUGH THE EARTH

According to W2HR's editorial in Ham Radio, June 1978, a group of atomic physicists predicts that some time this year the first message will be transmitted through the earth, rather than around it, along a beam of neutrino particles from a particle generator. In experiments with the 400,000 million-electron-volt proton accelerator in Illinois a 20 microsecond pulse of protons directed into a bar of aluminium yields about 10,000 million neutrinos per pulse resulting from atomic collisions The beam of neutrinos generates about one reaction per pulse in a bubble chamber containing 25 tons of liquid neon one kilometre away. The average neutrino is capable of passing through most of the matter of the universe without slowing down or losing any of its energy. When a beam of neutrinos is passed through a large volume of water, all along its path some of the collision products emit a forward core of Cerenkov photons which can be detected by a light collector-phototube system. Billions of neutrinos from the sun pass through your own body every second, day and night, but an estimate puts about once in 10 years as the interaction with one of the atoms in your body. ■

SLOW MORSE QRM

The VK5 broadcast was about to begin "This is VK5WI about to commence the evening slow morse session, get your pens ready." Then Big Carrier right on frequency "Stand by" says VK5WI, just above the carrier, pause, more carrier, tune up, tune up, so it goes on. After some minutes in sheer exasperation VK5WI says "O.K. if that's what you want, this is VK5WI closing down". Who can blame him!

From SWARS "Feedback" 1978 Convention Issue. ■

CORRECTION

Custom Communications apologise for any misunderstanding caused by their October advertisement. They are **distributors** for Kenwood, and Sole Australian Agents for Swan. ■

QSP — TOWARDS YOUR FUTURE

The International Radio Consultative Committee (CCIR), the technical consultative committee of the ITU, has been given the task of carrying out the necessary technical studies and organising a Special Preparatory Meeting (SPM) to prepare a report providing technical bases for the WARC 1979 and for the use of administrations in preparing their proposals.

It must be stressed that the SPM can only concern itself with technical considerations, and cannot make specific proposals for revised or new allocations. It is intended that the SPM shall present a comprehensive and self-contained report consistent with the various Agenda Items of the WARC.

Many administrations see the SPM as an important stage in the evolution of the ultimate determinations of the WARC.

Australia has regarded the SPM as being of particular importance and will be host of a Regional Seminar arising from the SPM in the first half of next year.

Australia has submitted a paper to the SPM relating to the Amateur Service. Canada and the United States of America have also submitted papers dealing with the Amateur Service. The Australian paper contends that it is no longer necessary to preserve a harmonic relationship between bands allocated to the Amateur Service and that the communication capability, and therefore operational effectiveness. of the Amateur Service in the HF bands would be significantly enhanced by allocations at intervals of 3 to 4 MHz between 3 and 30 MHz.

The WIA was invited to provide a delegate as a member of the Australian Delegation to the SPM so that expertise as to the particular requirements of the Amateur Service would be available.

Thus, Dr. David Wardlaw will be a member of the Australian delegation for the first two weeks of the SPM, and Mr. Michael Owen for the remaining two weeks.

The Federal Council at the last Federal Convention accepted the importance of the SPM and budgeted for the costs associated with amateur members of the Delegation. These costs must be borne by the WIA.

The SPM therefore represents a further heavy cost associated with the WARC, but a cost that it is believed is more than justified. Let it never be said in the years to come that the WIA failed to respond to the challenge of the WARC.

D. A. WARDLAW VK3ADW, Federal President
M. J. OWEN, VK3KI, IARU Liaison Officer ■

EDITOR'S DESK

Bruce Bathols VK3UV

One wonders why the end of the year always seems to come around so quickly.

It seems almost only like last week that we put together our December 77 issue "Australia's Window on the World".

Anyway, here it is again — Christmas and New Year — and what have we got to show for it?

Well, let's re-cap a little —

Things went along quietly for the first couple of months, then away we went:

We had our Novices using VFOs, next an extension to the Novice segment of 80 metres.

Several joint P&T/WIA committee meetings were held, the system is working smoothly and with each group appreciating the other that much better and ironing out many problem areas.

Renewed interest in respect of Channel 5A has kept a lot of amateurs on their toes — but there is still a long way to go.

Oscar 8 was launched and performing as it should, and adding extra enthusiasm to our hobby and investigations.

The introduction of RTTY sections in Australian contests has opened up further fields.

Participation in contests, particularly the RD, has been an all time high.

Jamboree of the Air was a huge success with over 3000 scouts and guides taking part.

A proposal for opening up the UHF band for ethnic TV, and proliferation of UHF CB will undoubtedly cause further pressures on amateur operations in that area.

The VK8 boys just missed out on setting a world record on 2 metres earlier this year — will they crack it in the coming DX season?

And so on it goes, amateur radio never stands still, there is always something new to keep one's interest held.

With this issue of AR, we have selected some articles which we hope will be of interest in particular to our many hundreds of up-and-coming and existing Novices, and also for all our other readers.

We have designated this issue our "Special Novice Issue" and have arranged for several hundred extra copies to be printed and be made available to the general public.

The extra copies are available from selected retailers, and also from the WIA, PO Box 150, Toorak, Vic. 3142.

The price for this issue only is $1.20 PLUS 50c posted, the higher price being to offset the greater publication costs involved.

If you require an extra copy — say as a Christmas gift — please place an order now.

WHAT NOW OF NEXT YEAR — 1979?
The main items at this stage are Channel 5A and UHF TV and of course the WARC in September.

The WIA needs all of the support **YOU** can muster, don't just sit back and let your over-worked Divisional representatives carry the brunt — **GET IN THERE AND HELP!!** — You know what is required and we are only working for all of us.

If Amateur Radio is to continue to survive, it needs **YOU** to get behind it and give it that extra push — in other words — **GET YOUR HEAD OUT OF THE SAND.**

With those few words, the Publications Committee and Executive extend our Christmas and New Year greetings to all. ■

WIANEWS

ITU/WARC 79 FUND

A letter has been sent to each non-member licensed amateur in the call book records explaining about WARC 79 and soliciting a donation for this purpose and/or joining the WIA.

Many readers of July 1978 AR may have observed from the Federal accounts for 1977 printed on page 32a provision for $1613 for Amateur Satellites. At the September Executive meeting it was decided to re-name this provision "Satellites and Special Projects". This provision has been increased to $4613 and includes funds required for Project Asert.

A petition, seeking extensions to the existing amateur allocations on 80 and 40 metres, and signed by 415 amateurs, was sent to the Chairman of the APG Committee No. 2 (Amateur) for back-up purposes in the WARC 79 preparations.

NOTES OF MEETINGS

PUBLICATIONS COMMITTEE

At the Publications Committee meeting on 3rd October the passing of Ken Gillespie VK3KG was recorded with a sense of great loss. Ken had been a member of the Committee for many years, with special responsibilities for drafting of AR diagrams and drawings.

Photographs of amateur interest were noted as being an urgent requirement. The meeting decided to print an additional quantity of this issue of AR for sale to the public through selected outlets. Further discussions were held on the possible publication of a VHF book containing reprints of good articles from past issues of AR, advertising, technical articles and many other subjects.

DONATIONS, WARC 79

The Executive wishes to acknowledge with grateful thanks the receipt of the following donations to the WARC 79 fund:—

F. J. M. Phillips VK2ZQ, $10; Tumut and District Radio Club ($2 each from VK2PN, VK2ALZ, VKTZAA, R. Chapman and the Club), $10; Eastern and Mt. Districts RC, $100; Anon, per Federal President at EM and DRC, $10.

THE EXECUTIVE EXPRESSES CHRISTMAS AND NEW YEAR GREETINGS TO ALL MEMBERS ■

ARE YOU AN ACTIVE MEMBER?

Are you an active member,
The kind who would be missed.
Or are you just content to see
Your name down on the list?
Do you attend each meeting
And mingle with flock,
Or do you stay away, then criticise and knock?
Do you take an active part to help and work along
Or are you satisfied to be the kind who'll just belong?
Do you push the cause along and make things really tick,
Or leave the work to others, and talk about 'The Clique'?
Think this over, member — you know right from wrong,
Are you an active member, or do you just belong? ■

Well, it had to happen !

2m hand-held

800ch Synthesised

144–148 MHz **Palm size**

Sooner or later it had to happen. Now Vicom are proud to introduce the first ham hand-held synthesised 2m rig with thumbwheel dial-up of frequencies 144–148 MHz. The palm size (40 x 62 x 165 mm) and 400 gram weight of this NiCd rig makes it ideal for the ham on the go!

RF output power	:	1.5w
Harmonics	:	–60 dB
Spurious	:	–70 dB
Repeater offset	:	+600 KHz or –600 KHz
Sensitivity	:	0.3 uV 20 dB SINAD

The unit features high quality construction with double sided glass-epoxy pcbs.

And your new hand held comes complete with VICOM 90 day warranty and service back-up.

$399.

1.5w

WOW

NEW!

VICOM SPECIAL of the month

KENWOOD

Try us for a trade-in

90 day warranty

TS520S	HF TRANSCEIVER 10–160M, 240 Vac	P.O.A.
TS820S	HF TRANSCEIVER 10–160M, 240 Vac	P.O.A.
AT200	ANTENNA TUNER	P.O.A.
SM220	STATION MONITOR	P.O.A.
BS-5	PAN ADAPTER FOR TS820 SERIES	P.O.A.
BS-8	PAN ADAPTER FOR TS520 SERIES	P.O.A.
TL922	LINEAR AMPLIFIER	P.O.A.
SP520	MATCHING SPEAKER TS520S	P.O.A.
SP820	MATCHING SPEAKER TS820S	P.O.A.

NEW

TS-120V

HF MOBILE TRANSCEIVER

$ 630.00

SAVE

MFJ 40T QRP transmitter. Work the world with 5 watts on 40 meter CW. No tuning. Matches 50 ohm load. Clean output with low harmonic content. Power amplifier transistor protected against burnout. Switch selects 3 crystals or VFO input. 12 V DC operation. **$49**

new !

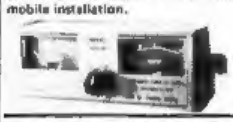
vfo option $49

5w

CW FILTERS

FT101E	filter	$49.00
TS520S	(YG3395C)	$57.00
TS820S	(YG88C)	$57.00

Popular VC2 swr/pwr meter covers 3-160MHz with power 4 amps 12/120 watts. Will handle up to 1000w. 50 ohms impedance, twin meters, this quality thru-line instrument is ideal for the shack or for permanent mobile installation.



$35

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VM-1	Noise cancelling, hand ptt, low Z	$10.00
VM-2	Desk mic with pre amp, low Z	$27.00
MC-10	Kenwood hand ptt, high Z	$20.00
MC-35S	Kenwood hand noise cancelling	$25.00
MC-50	Kenwood desk mic, high/low Z	$45.00
HM-1	ICOM Hand ptt, low Z	$18.00
HM-3	ICOM military style hand ptt	poa

HAL

DSR3000	CW, ASCII, BAUDOT, Keyboard & display	poa
ST6000	RTTY demodulator	poa

OSKERBLOCK PROFESSIONAL SWR/PWR METER
The professional bridge using thru-line principle covers 3 to 200MHz with dual impedance 52 and 75 ohms. Each instrument individually calibrated and covers four power ranges: 2/20/200/2000 watts.

PALOMAR RX NOISE BRIDGE $95.00

"THE PROFESSIONALS"

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6KD6	$13.00
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6146B	$13.50
572B	$61.00

spares

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HK708	Economy key	$23.00
HK706	Operator's key	$25.00
MK701	Manipulator (side-swiper)	$45.00
EK1032	Electronic keyer	$336.00
PALOMAR	IC keyer	$149.00

MULTIMETERS

DM3003	Daiwa digital	$120.00
TP-10S	2000 ohms/V	$29.50
117-FET	Quality FET VOM	$54.00
OB-350	20,000 ohms/V inc. field strength	$41.00
MC270	Professional field strength m	$259.00

bankcard

DINERS CLUB

The law requires that a licence be held for all transmitting equipment.

Russell Kelly, VK3NT
Director

Peter D. Williams, VH3IZ
Director

AT VICOM WE DO NOT SELL RIGS IN FACTORY - SEALED CARTONS !

When we despatch any of the fine pieces of equipment sold at VICOM we want to be certain it meets or exceeds the manufacturer's specs. We thoroughly pre-delivery check all transceivers before shipment and back this up with our Vicom 90 day warranty (this excludes final tubes and transistors). If getting a super discount from some "backyard" show is important to you — or if you insist on a factory-sealed carton from a supermarket — we suggest you shop elsewhere.

But if you want the positive assurance that you are receiving the value and performance you're entitled to, plus ethical business conduct — then VICOM is the supplier for you!

Give us a call today for that friendly personalised service for which VICOM has become famous!

vicom

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open Saturday mornings.

Perth	446.3232	Sydney	681.3544
Adelaide	43.7981	Brisbane	38.4480
Gold Coast	32.2644	Hobart	43.6337
Canberra	82.3581		

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SMALL ENOUGH FOR MOBILE!

IC-701 + IC-211

IC701	HF transceiver, solid-state	$1,480.00
IC701PS	AC power supply	$253.00
IC211	2m all-mode transceiver	$799.00
RM3	Remote control head	$169.00

OSCAR TRANSCEIVE ?

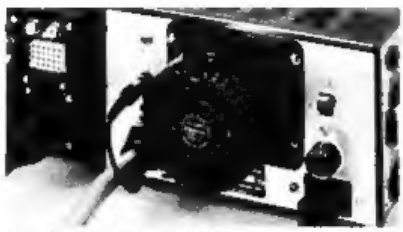
No one could ask for a better OSCAR station than the IC701 and IC211 together for a mode "A"; and adding a transverter to the IC701 mode B or J offers newer, better satellite horizons. Within the ICOM LSI based radios there is the capacity for the technically minded amateur to tune one radio of the pair with the VFO knob of the other (Oscar transceiver, anyone?). In addition, the LSI lends itself to being controlled by a parallel port on one of the increasing number of microprocessors now available for amateur use. Microphones and other accessories are compatible with both radios, such as the RM3 remote microprocessor frequency controller. This nifty unit provides memory and frequency control including automatic band change and memories for 4 different frequencies plus auto increment or simple step tuning in 100 Hz, 1, Hz or 25 Hz steps.

The 1980's features built into your ICOM radio will mean happy use for a long period of time without becoming old-fashioned. The systems possibilities with the IC701 and IC211 are so numerous that even we have not thought of all of them yet!

State of the art

IC-22S

The famous IC22S transceiver — more of these sold in Australia than any other 2m Rig. Price: $330.00



FAN OPTION

The CF1 optional cooling fan for the IC701 power supply. Easy to install. Price: $45.00

EX-1

The extension terminal for operating the IC701 with a linear amplifier. Price: $45.00

IC-280

The popular remotable 2m fm Rig Price: $450.00

fun portables

ICOM Portables: This outstanding group of ICOM portable transceivers puts Amateur communications in your grasp and on the go with high quality ICOM radios packed into extremely compact and rugged die-cast aluminium frames that are built for travel.

All the ICOM portable are designed with performance and features that allow for external power, and external antenna hookup (UHF connector); and the quick-change fold away mobile mount makes them ideal for mobile operation. The front-facing design of these radios contributes to convenient operation from home, vehicle or hill top. All controls, including single-knob tuning dials and lighted "S" meters, are located on the front panel, as are mic and external speaker plugs.

All three sideband portables, IC-202S, IC-502, and IC-402, put out a full 3 watts PEP to get through when the band is open or to drive a class AB1 amp to full output. The IC-215 FM portable delivers an output of 3 watts in the high power mode and 0.5 watts in the lower power position. The IC-215's low power conserves "C" cell battery life, and 3 watts from the portables jumps to 10 watts through out optional amp, the IC-20L for 2 meters.

FOR FULL DETAILS WRITE FOR OUR ICOM CATALOG.

Hold it!

NEW

IC-402 **70cm**

Specifications:	IC-402
Frequency Coverage:	430-435.2 MHz in any four 200 KHz bands
Antenna Impedance:	50 ohms
Power Supply:	13.8V DC negative ground
Current Drain:	
Tx	A3J, approx. 670ma
Rx	Approx. 100ma with no signal
Size:	183mm(h) x 61mm(w) x 162mm(d)
Weight:	2.0 Kg
RF Output Power:	A3J, 3W PEP; A1, 3W
Carrier Suppression:	Better than 40 dB

The new IC202S is the new ssb portable two metres now featuring BOTH sidebands and FM marketed together with the IC202E which has only USB. The IC202E replaced the popular IC202 with a number of circuit improvements.

The IC202S features a new style front panel together with the traditional high ICOM quality.

6m DX is fun with the IC502

IC215	2m fm incl. 5 channels	$245.00
IC402	70 cm ssb portable	$469.00
IC202S	2m ssb portable USB/LSB	$357.00
IC202E	2m ssb portable	$239.00

ACCESSORIES FOR THE PORTABLES

LC025	Leather case	$12.00
FA-1	Rubber ducky antenna	$12.00
MMB-B	Mobile mount	$22.00
BC-20	Nicad pack	$69.00

ICOM

IC-202S **2m**

Distributed in Australia by VICOM

QUALITY ACCESSORIES from DAIWA

ANTENNA RELAYS

Two quality models:

MODEL CX-2L

Frequency range	: 1.8 thru 170 MHz
Power rating	: 100w pep
Power required	: 10–15v dc
Sockets	: SO-239
Price	: $48

MODEL CX-2H

Frequency range	: 1.8 thru 450 MHz
Power rating	: 200w pep
Power required	: 10–15v dc
Price	: $69

NEW

DIGITAL MULTIMETER DM3003

DAIWA

The new DAIWA digital multimeter is ideal for the serious amateur. This fine instrument handles DCV, ACV, DCma, ACma plus resistance with a high input impedance. Introductory offer, $120.00.

Also a range of precision swr & pwr meters

COAX SWITCHES

Coaxial Switches
2 Position/Model CS-201 4 Position/Model CS-401

Professionally engineered cavity
Construction: High isolation
Power Rating: 2.5 kW PEP, 1 kW CW
Impedance: 50 Ohm
Insertion Loss: Less than .2 dB
VSWR: 1:1.2
Maximum Frequency: 500 MHz
Isolation: Better than 60 dB at 300 MHz; better than 50 dB at 450 MHz; adjacent terminal
Connectors: SO-239

CS-201 $26 CS-401 $61.00

Write for literature.

QUALITY SPEECH PROCESSORS

DAIWA

Increases talk power with splatter free operation.
RF clipping assures low distortion. Simply install between microphone and transmitter.
Talk Power: Better than 6 dB
Clipping Threshold: Less than 2 mV at 1 KHz
Bandwidth: 2200 Hz at 6 dB down
Frequency Response: 300–3000 Hz at 12 dB down
Distortion: Less than 3% at 1 KHz, 20 dB clipping
Output level: More than 50 mV at 1 KHz
Power Requirement: 240 VAC 50 Hz, 1.4 W; or 13.5 VDC, 55 mA
Dimensions: 150 x 70 x 150 mm; 5 x 2.5 x 5 in.

Model RF550 (filter type)	$184.00
Model RF440 (phasing type)	$136.00
Model MC930 Speech Compressor	$ 99.00

LOW PASS FILTERS

QUALITY LOW PASS FILTERS (5 SECTION)

	FD30LS	FD30M
Frequency cut-off	52 MHz	32 MHz
Power rating	100w cw	500w cw
	200w pep	1 Kw pep
Insertion loss	0.5 dB	0.3 dB
Price	$20	$39

ANTENNA COUPLERS DIRECT READING SWR-PWR METER

DAIWA

CROSS NEEDLES

MODEL CNW-217
Freq coverage : 1.8 thru 30MHz
Input power : 100w CW, 200w pep
Input impedance : 50 ohms unbalanced
Output impedance : 10-300 ohm unbalanced
$199

MODEL CNW-417
1.8 thru 30MHz
200w Cw, 500w pep
50 ohms unbalanced
10-300 ohms unbalanced
$245

ROTATORS

The quality DAIWA rotators are housed in weather sealed and factory lubricated die-cast aluminium housing with a colourful resin coating. The reduction gearing has been especially designed for dependable long-life operation and practically silent operation.

COMPLETE ATTRACTIVE WITH CONTROLLER

	DR7500	DR7600
Rotation time	60 secs	64 secs
Rotating torque	500 kg/cm	600 kg/cm
Braking torque	2000 kg/cm	4000 kg/cm
Vertical load	200 kg	200 kg
Cable	6 core	6 core
Weight	4.5 kg	4.6 kg
Price (incl. control unit)	$199	$289

Cable for above $1 per metre.

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ANTENNAS & ACCESSORIES

MFJ-901 Versa Tuner

The 901 features the same efficient air wound coil of the 941 — for more watts out! The coil inductor has 12 positions. The tuner will match everything from 160 to 10 meters. 200 watts RF output. 1:4 balun and SO-239 connectors. Works great mobile.

112.00 Call for yours today.

This NEW MFJ Versa Tuner II . . .

has 3000 watt dual range wattmeter, antenna switch, efficient airwound inductor, built in balun. Up to 300 watts RF output. Matches everything from 160 thru 10 Meters: dipoles, inverted vees, random wires, multi-cpls, mobile whips, beams, balanced lines, coax lines.

Only MFJ gives you this MFJ-941 Versa Tuner II with all these features at this price:

A 3000 watt dual range wattmeter (300 and 30 watts full scale) lets you watchdog RF power output for simplified tuning.

An antenna switch lets you select 2 coax fed antennas, random wire or balance line, and tuner bypass.

A new efficient airwound inductor (12 positions) gives you less losses than a toroid wound for more watts out.

A 1:4 balun for balance lines. 1000 volt capacitor spacing. Mounting brackets for mobile whip/antennas (not shown).

With the NEW MFJ Versa Tuner II you can run your full transceiver power output — up to 300 watts RF power output — and match your transceiver to any loading from 160 thru 10 Meters whether you have coax cable, balance line, or random wire.

You can base out the 3000 on your dipole, inverted vee, random wire, vertical, mobile whip, beam quad, or whatever you have.

You can even operate all bands with one multi-band antenna. No need to put up separate antennas for each band.

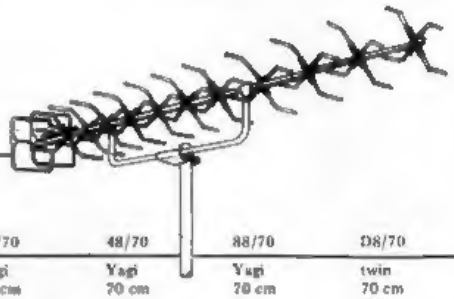
$139 160-10m TUNER

MFJ-16010 RANDOM WIRE TUNER FOR LONG WIRES.

$79

1.8 thru 30 MHz. Up to 200 watts RF output. Matches high and low impedances. 12 position inductor. SO-239 connectors. 2x3x4 inches. Matches 25 to 200 ohms at 1.8 MHz. Does not tune coax lines.

MFJ



JAYBEAM VHF/UHF BEAM ANTENNAS

Model	5Y/2M	8Y/2M	10Y/2M	16XY/2M	18/70	48/70	88/70	D8/70
Type	Yagi	Yagi	X yagi	Yagi	Yagi	Yagi	Yagi	twin
Band	2m	2m	2m	2m	70 cm	70 cm	70 cm	70 cm
Gain dBd	7.8	9.5	11.4	11.5	14.9	15.7	18.5	12.3
No of el	5	8	10	16	18	48	88	2x8
Horiz beam width	58°	47°	37°	36°	28°	26°	19°	45°
Max power	1 Kw	1 Kw	1 Kw	1 Kw	1 Kw	1 Kw	1 Kw	1 Kw
Length metres	1.6	2.8	4.4	5.6	2.8	1.83	3.98	1.1
Mass Kg	1.8	3.8	4.5	5.9	3.4	2.7	4.7	2.5
Impedance ohms	50	50	50	50	50	50	50	50
Price $	43.00	51.00	84.00	84.00	71.00	83.00	102.00	64.00

HUSTLER

HF MOBILE RESONATORS well designed

Model	Band	Price
RM80	80m	$50.00
RM40	40m	$25.00
RM20	20m	$16.50
RM15	15m	$16.00
RM10	10m	$15.00
M02 fold-over mast		$55.00
RSS-2 medium duty spring		$13.00
BM-1 deluxe bumper mount		$25.00

6m beams

6 METRE BEAM, 5 ELEMENTS, 1 Kw MAX, GOOD QUALITY $159

6 metres DX is great fun!

NAGARA TRAP VERTICALS

Model V5Jr 5 band trap vertical:
Height: 6.7m
Weight: 2.3 Kg
Max Power: 1 Kw
Impedance: 52 ohms
80 thru 10m $129

Model 4Jr 4 band trap vertical:
Height: 5.2m
Weight: 1.8 Kg
Max Power: 1 Kw
Impedance: 52 ohms
40 thru 10m $ 99

BASES

AS-NK	Bumper mount kit	$25.00
AS-KDA	Spring & swivel mount	$23.00
AS-GM	Gutter mount, stainless steel	$22.00
KLAMG	Magnetic bases	$19.00

Order By Mail or Call

2m MOBILE

M22T ¼ wave 2m mobile whip	$7.00
M25T 5/8 wave 2m mobile whip	$14.00
— bases for above	$4.00
Lindenow 5/8 2m mobile whip	$34.00

SWL ANTENNAS

Listener-3 short wave antenna for the serious SWL	$49.00
Listener-1 short wave antenna 2–30 MHz	$22.00

BALUNS

BL50A RAK 50 ohm, 4 Kw model for dipoles	$32.00
BL70A RAK 70 ohm, 4 Kw model for dipoles	$32.00
AS-BL ASAHI 50 ohm, ideal for beams	$36.00

TRAP DIPOLES

Mldy VNB 80 thru 10m trap dipole, 23m long	$111.00
AL24DXN 20 and 40m trap dipole	$70.00
A4VPN 40m dipole kit	$27.00

PARABOLIC DISH

PARABOLIC DISH FOR 432 & 1296 MHz
A professionally engineered dish with 12 db and 20 db gain on 70 cm and 1.2 GHz. $349

DISCONES

GDX-1 80 thru 480 MHz commercial discone	$85.00
SCAN-X 65 thru 530 MHz receive only	$39.00

FAMOUS RINGO

The RINGO RANGER ARX-2 is a 2m gain omni-directional antenna with 3 half waves in phase and a 1/8 wave matching stub. The Ringo gives an extremely low angle of radiation for better signal coverage. It is tunable over a broad frequency range and perfectly matched to 52 ohm. Price $49

4dB gain with reference to half-wave dipole.
6dB gain with reference to quarter-wave whip.

RINGO RANGER

There is no substitute.

hy-gain Amateur Radio Systems.

Distributed by VICOM

Super 3-Element Thunderbird for 10, 15 and 20 Meters Model TH3Mk3

Hy-Gain's Super 3-element Thunderbird delivers outstanding performance on 10, 15 and 20 meters. The TH3Mk3 features separate and matched Hy-Q traps for each band, and feeds with 52 ohm coax. Hy-Gain Beta Match presents tapered impedance for most efficient 3 band matching, and provides DC ground to eliminate precipitation static. The TH3Mk3 delivers maximum F/B ratio, and SWR less than 1.5:1 at resonance on all bands. Its mechanically superior construction features taper swaged slotted tubing for easy adjustment and larger diameter. Comes equipped with heavy tiltable boom-to-mast clamp. Hy-Gain ferrite balun BN-86 is recommended for use with the TH3Mk3.

Electrical	TH6DXX	TH3Mk3
Gain—average	8.7dB	6dB
Front-to-back ratio	25dB	25dB
SWR (at resonance)	Less than 1.5:1	Less than 1.5:1
Impedance	50 ohms	50 ohms
Power rating	Max legal	Max legal

TH6DXX	beam	$299
TH3Jr	beam	$219
TH3MK3	beam	$239
203Ba	beam	$189
204Ba	beam	$249
HyQuad		$269
18AVT	vert.	$149
14AVQ	vert.	$109

6-Element Super Thunderbird DX for 10, 15 and 20 Meters Model TH6 DXX

Separate HY-Q traps, featuring large diameter coils that develop an exceptionally favorable L/C ratio and very high Q, provide peak performance on each band whether working phone or CW. Exclusive Hy-Gain beta match, factory pretuned, insures maximum gain and F/B ratio without compromise. The TH6DXX feeds with 52 ohm coaxial cable and delivers less than 1.5:1 SWR on all bands. Mechanically superior construction features taper swaged, slotted tubing for easy adjustment and readjustment, and for larger diameter and less wind loading. Full circumference compression clamps replace self-tapping sheet metal screws. Includes large diameter, heavy gauge aluminum boom, heavy cast aluminum boom-to-mast clamp, and heavy gauge machine formed element-to-boom brackets. Hy-Gain's ferrite balun BN-86 is recommended for use with the TH6DXX.

ALL ABOUT DIODES

by George Stanley
(Submitted by Bruce Marsh VK3ZHI)

Diodes may seem simple to you as they have just two leads, but do you know how to recognize and test the following: PN, Zener, Avalanche, SRD, Tunnel and PIN? In order to keep the number manageable I'm leaving out light-emitting four-layer, and microwave mixer diodes.

PN DIODES

Let's take the most basic first, the common, garden-variety PN junction diode. This is man's attempt to make a one-way switch. That is, ideally, no current would flow when the device is reversed biased and there would be no resistance when it is forward biased. Figure 1 shows the ideal.

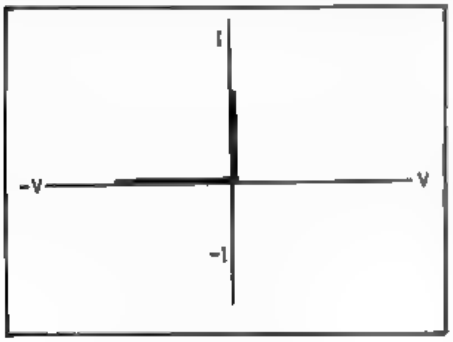


FIG. 1: Ideal Diode

Figure 2 shows what's practical for a germanium and silicon diode. Notice that very little current flows until a threshold voltage is reached (at room temperature approximately 0.2 for Ge and 0.6 for Si) and then the current through the diode increases rapidly without much further increase in the diode voltage.

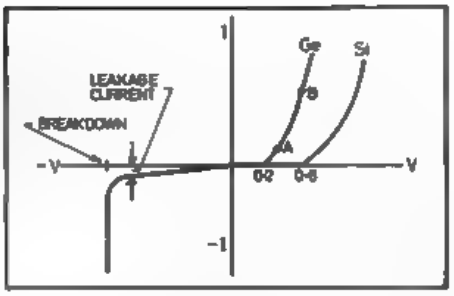


FIG. 2: V-I Characteristics

Testing a PN diode can be done in a number of ways. For example, an ohmmeter can be used to check the forward and reverse conductance. That is, it should show a high resistance when the diode is reverse biased and a low resistance when it is forward biased. You might wonder why the readings change somewhat when you change scales or use a different ohmmeter. The reason is because the diode curve is non-linear. It's like changing from operating point "A" to operating point "B" in Figure 2.

A more interesting way to test diodes is to display the V-I characteristic (Figure 2) on an oscilloscope. This can be done using the tester of Figure 3 which we will use again in a future article on testing transistors.

Examining Figure 3 shows that the *vertical* signal is proportional to the current through the device while the *horizontal* signal is proportional to the voltage across the device. *(The two 10 k resistors are only to protect delicate diodes or transistors if shorts develop in the scope cables.)*

Using this tester and the associated table of waveforms you can rapidly determine if a diode is open or shorted. It also tells if there is associated resistance or capacitance from neighbouring components such as on a PC board. This is a valuable tester which really comes into its own when you want to rapidly test the emitter-base and base-collector diodes on a many-transistor PC board.

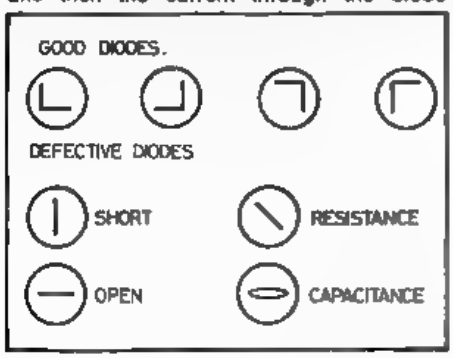


TABLE 1: Diode/Transistor Circuit Waveforms

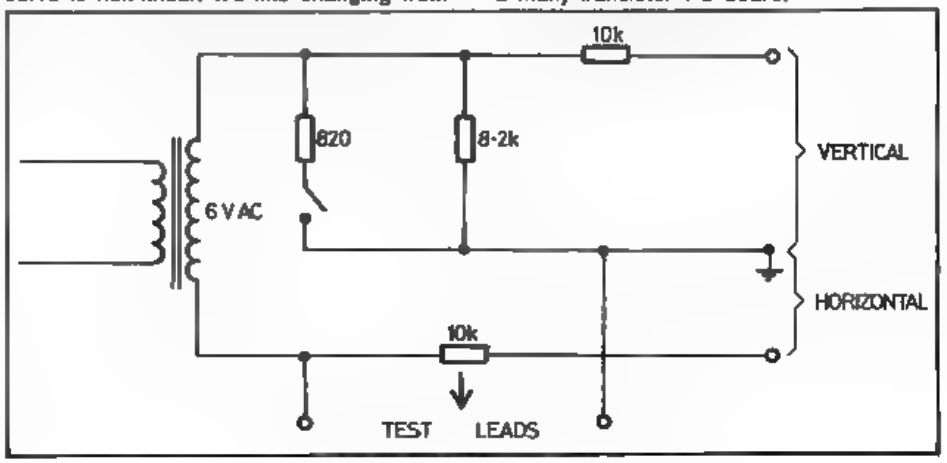


FIGURE 3: Diode/Transistor Checker

Applications of the PN diode are many. Leading the list are rectifiers, switches and temperature compensators. The garden-variety PN diode has a *negative* TC, or temperature coefficient, and this property is often used to counteract the *positive* TC of the Avalanche diode. Figure 4 shows the reason for the —TC. When heat is applied, the diode tries to turn on harder and its resistance falls. The current is limited by the 10 k resistor so the diode voltage *must* fall. Try it yourself. All you need is a battery (borrow the one out of your wife's radio), a resistor, soldering iron for heat, and your multimeter to track the voltage as you heat the diode.

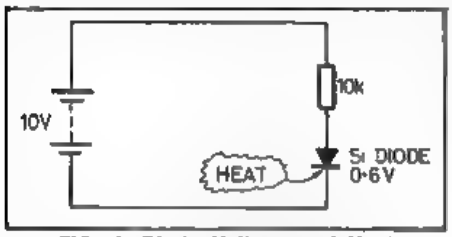


FIG. 4: Diode Voltage and Heat

ZENER AND AVALANCHE DIODES

Both Zener and Avalanche diodes are breakdown diodes (see Figure 2) but the Zener diode has a *negative* TC (the breakdown voltage falls as the temperature is raised) while the Avalanche diode has a *positive* TC (the breakdown voltage rises as the temperature is increased). This difference comes about from the different way breakdown occurs. Simply put, in the Zener diode (up to about 5V) electrons are freed by the applied field being strong enough to suddenly rip electrons out of the lattice structure and put them into the conduction band.

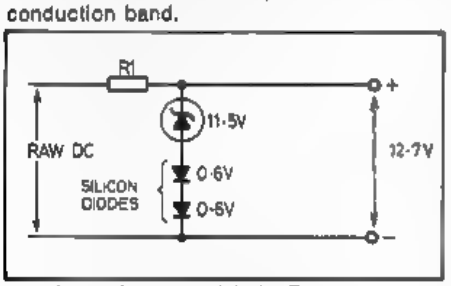


FIG. 5: Avalance Diode Temperature Compensation

In the Avalanche diode (above about 7V) the energy gap is wider and before Zener action occurs, free electrons are accelerated to a velocity high enough to knock out lattice bound electrons during collisions. In the 5-7 volt region breakdown diodes often exhibit a nearly flat TC because both processes are occurring and compensate each other to a certain extent. Figure 5 shows how a PN junction diode with its *negative* TC can be used to compensate the *positive* TC of an Avalanche diode.

The diode tester (Figure 3) can be used to check breakdown diodes if they breaks down below about 9 volts (6.3 volts of the transformer x1.414)

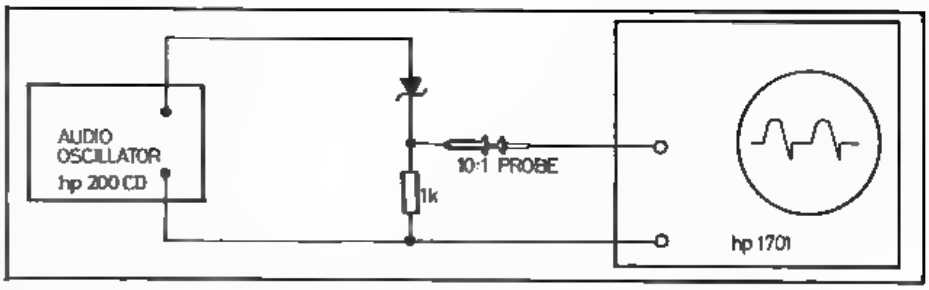


FIG. 7: SRD Display Set-up

STEP RECOVERY DIODE (SRD)

The Step Recovery Diode is a special PN junction diode. It has heavy doping near the junction which gives it a long charge storage, but when carrier recombination ends (electrons falling into holes) it ends abruptly and the device switches off *very* rapidly. Figure 6 shows the current through the device as a function of time.

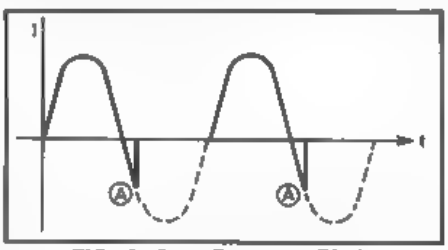


FIG. 6: Step Recovery Diode Waveform

Since this diode generates a very sharp "on-to-off" transition (Point A, Figure 6) it is often used as a harmonic generator. Testing can usually be done with the diode checker or with an ohmmeter (watch you don't use the Rx1 scales as it may put out a very high short circuit current). Look for opens or shorts. If you want to experiment a little, you can display the waveform of Figure 6. You will need a high frequency scope (50 MHz or higher) and at least a 500 kHz oscillator driving source. The arrangement of Figure 7 shows the detailed connections.

TUNNEL DIODES

Tunnel diodes are not as complicated as you have been told. Figure 8 shows their V-I characteristics.

Because of very heavy doping, the gap between electrons on the N material side and holes on the P material side of the PN junction is much narrower than in the plain PN junction. The result is electrons *tunnelling* after holes and vice versa even without bias. When forward bias is applied, conduction starts immediately as conduction band electrons (N material) find themselves next to valance band holes (P material) and the tunnel occurs with vengeance. This continues during region 1 on Figure 7. Current peaks at point 2 and then decreases because the gap between N side electrons and P side holes increases and becomes too wide for tunnelling. Current falls off very rapidly until it intersects the "normal" diode curve at 3.

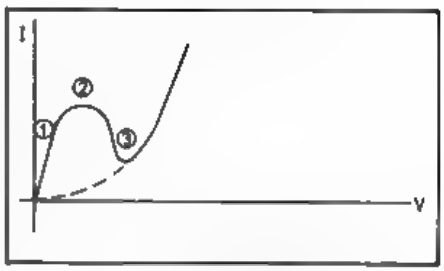


FIG. 8: V-I Characteristics of Tunnel Diode

Many tunnel diodes can be tested using the diode checker of Figure 3, but put the switch in the "In Circuit" position to obtain the proper current/voltage relationship.

THE PIN DIODE

The PIN diode consists of P material, intrinsic material and N material. The intrinsic material is quite wide and is the key to its operation which is as a microwave attenuator. In a typical application the PIN is placed across microwave transmission line and a DC bias is applied to the diode. This bias injects a large number of holes and electrons into the intrinsic region. This large amount of stored charges means the diode continues to partially conduct even during the reverse bias part of the RF cycle. This is the key to its application. Note it does not act like a diode but rather as variable resistor. The amount of resistance (attenuation) is a function of the d-c forward bias, i.e the more bias, the more stored charge and the greater the attenuation

Failures are usually by shorting as it's difficult to provide a large heat sink in the middle of a microwave transmission line. However, sometimes after shorting the diode will open internally due to the heat produced when it first shorted. You can expect to find both situations. Not only are PIN diodes somewhat delicate but you have to be careful soldering them into the circuit as you don't want to set up a mismatch on the transmission line

There are at least as many diodes I've left off as I've covered, but hopefully this short article will give you more insight into these fascinating devices. In a future article I would like to cover rapid transistor testing

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QSLs — THE HOMEBREW WAY

J. T Higson VK3ABW
24 Stapley Crescent Chadstone. Vic. 3148

Over the years the problem in obtaining reasonable QSL cards at an attractive price has been a problem at this QTH. Prices are always geared to the amount produced, and small orders did not justify the outlay. In addition, a design cannot be changed without additional expenditure. This naturally led the writer to seek elsewhere, and the only way out was either to silk screen, or use some photographic method. Since one of my hobbies is photography, I decided to use my equipment to produce a suitable QSL card on postcard size double weight photographic enlarging paper.

Since this article will prove of interest to many who do not possess high quality dark room equipment, it was decided that the final prints should be produced using the minimum photographic requirements. Hence, a precision high definition flat plane lens is not necessary. A master positive is produced by using draftsman's tracing paper or mylar sheet as a semi or transparent base. The actual size of your card is determined by drawing a pencilled square, and within this square you will place all the information required. Fig. 1 "A" and "B" show the appropriate letter-in glayout which was done with a product by the name of Letraset. This material is a rub on lettering system which transfers to any base, such as the mylar sheet, by rubbing with a soft blunt pencil. Some practice is needed to acquire the necessary skill to apply the lettering in a neat straight line. Squared graph paper under the base medium is a must Letraset is of course available in various sizes If you intend to include drawings, use only a base that will take an indian ink

The drawings are usually traced, unless you are something of a commercial artist I usually trace the drawings first because a mistake here does not waste the Letraset.

When the master is finished, your photographic skills will begin

A negative must now be made with IH4 Ilfolith or Kodalith This is a high contrast blue sensitive sheet film which can be handled in a bright red safe light. This material can be obtained from "Photo-Scope", 2 Macrina Street, Oakleigh. It is supplied in 25 sheet packs in 4" x 5" or larger. I doubt whether lesser quantities are procurable since it is a professional material.

FIGURE 1A

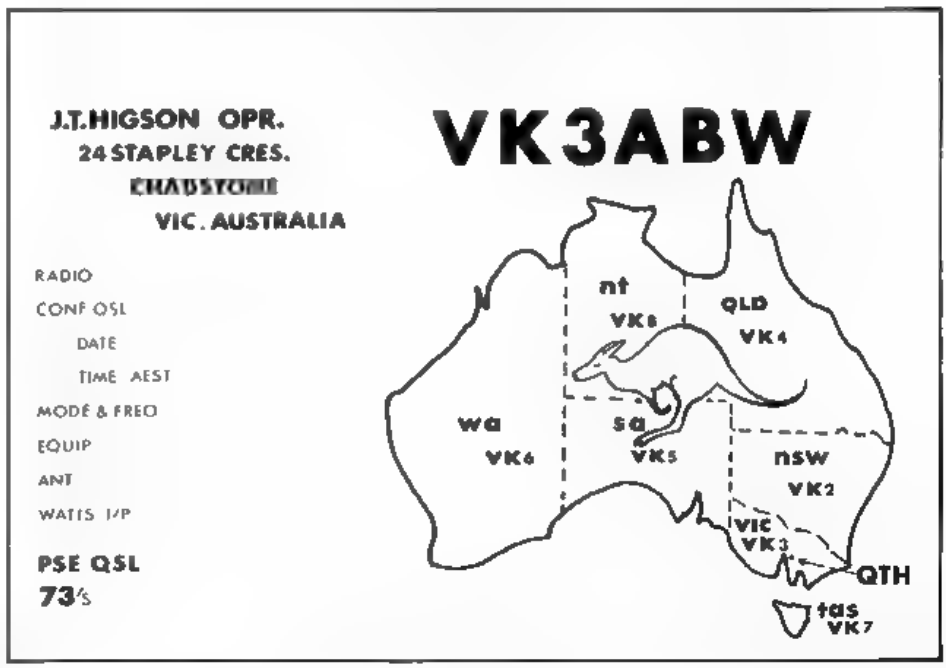

FIGURE 1B

This material is developed in a lith developer and fixed in a fixing solution available from the same source. The developing solution is made from two solutions "A" and "B" and only the amounts needed of the two are mixed prior to use. This solution once mixed keeps only a few hours The developer contains alkalis which could reach a pH value of 10 to 13 and may trouble sensitive skins — so use print

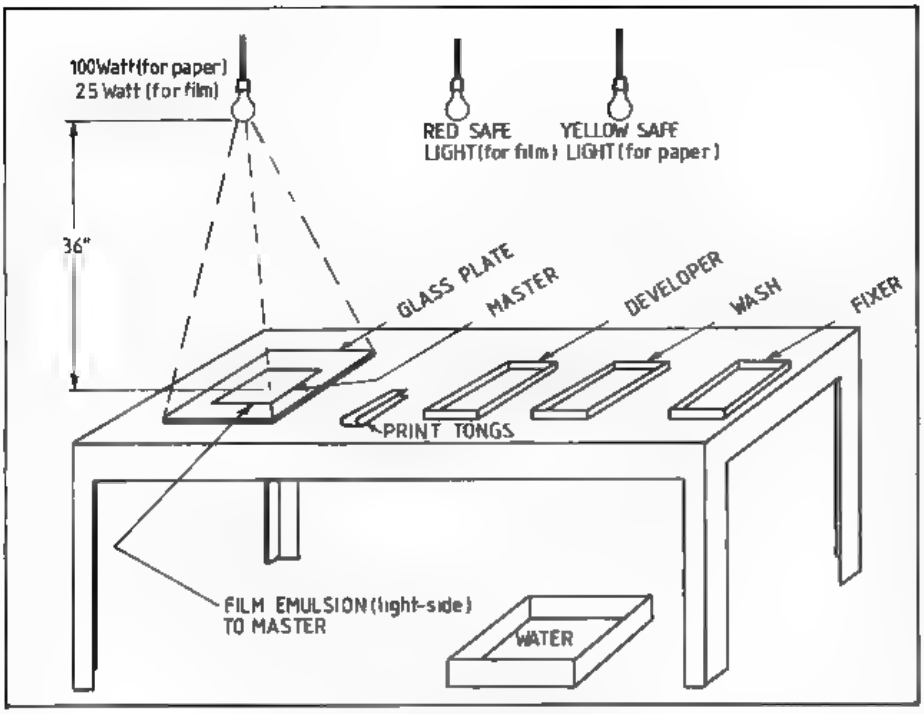

FIGURE 2: Bench Layout.

tongs.

There are four steps in processing:

1. Development
2. Wash
3. Fixing
4. Final Wash.

Do not use an acid loaded stop bath This will produce small bubbles on the surface of the film due to the reaction with the alkali, and tends to create pin holes on the negative. It is better to use a plain water wash.

Now to the procedure in producing the negative — referring to Fig. 2, which shows the layout on the work bench, the equipment you will need is as follows:

25 watt clear lamp for film
100 watt clear lamp for paper
15 watt bright red safe light for film
15 watt yellow green safe light for paper
Print tongs
3 10 in x 8 in trays (must be plastic)
Sheet glass (old side window from car)
1 bucket of water

(Safe lights should be purchased from photographic suppliers. Be sure that you purchase the bright red bulb, and not the low intensity one usually used with high speed ortho stock.)

PROCEDURE — FILM

Suspend the 25 watt bulb about 36 inches above the bench in a central position in line with the master and switch red safe light on. The first developing tray need not be 10 in. x 8 in., but only large enough to fit the film size (The tray for the paper developer must be 10 in x 8 in. because the developer will quickly exhaust when 50 to 100 papers are developed.)

Mix enough "A" and "B" solutions of the Ilfolith developer to half fill the tray

Fill the second tray with plain water, and the third tray with fixer. I use Ilford rapid fix. It will be necessary to cut test strips to establish the correct exposure time. Place test strip under master, place glass on top, and try 2½, 3½, 5, 7 and 10 seconds. Develop by constant agitation for 3 minutes. Wash and fix. The fixing time will depend on fixed used. Under exposure will show by too many holes in the black portions on the negative. Over exposure will cause the lettering to be "unsharp" or to run into itself The correct exposure will give very sharp lettering and a dense black silver emulsion.

Note the correct exposure time and make a full negative, develop and fix as before, but wash the negative for 15 minutes, then hang to dry

PRODUCING THE CARD

Many of you who will be interested in this process will not possess a photographic glazing and drying machine. Therefore the normal paper base supplied with various surfaces will not be suitable for air drying. Unfortunately, old style papers dried in this way will shrink unequally However, the photographic industry has come to your rescue with a new paper called Ilfospeed. The paper that supports the emulsion in this process has a resin base and does not absorb water, only the emulsion. This paper is a medium weight obtainable in glossy and semi-matt surfaces from the source mentioned previously. Indeed, this paper is now replacing the older style, and will be the only type on the market in the future. Since only the surface emulsion is wetted the paper dries quickly and remains flat and glossy. In the old process the papers had to be glazed using a polished plate. If you decide on glossy, a NYLON TIPPED PEN is the only medium that will write on the surface, when the time comes to fill in the details of a QSO.

To proceed, the developer needed is a normal paper developer, not the previous lith developer This is available with instruction from the previously mentioned source.

PAPER PROCESSING

The safe light needed now is the yellow green photographic safe light. The three 10 x 8 inch trays are prepared and a final bucket of water to load the prints after fixing period. The fixing period will depend on the main chemical used in the fixer Rapid fixers that fix in less than one minute, may use Ammonium Thio Sulphate Slower fixers use Hypo which is short for Sodium Thio Sulphate which will taken ten minutes to fix. I prefer Ilford Rapid Fixer The second bath must contain a stop bath This can be a one per cent solution of acetic acid, or one of the commercial compounds sold by photographic suppliers. This is necessary in order to stop development and prevent the alkali-loaded developing solution being carried to the fixing bath. It was allowable in the previous process because only a few were being done.

You will now need the 100 watt bulb because the emulsion of the paper is much slower than the film. You may have to adjust the distance in order to satisfy your patience I would adjust the exposure time to 3-4 seconds noting the distance of the light from the paper for future occasions. Ilford paper is excellent for maintaining its speed relationship from batch to batch. Exposure accuracy here is not important because no middle tones are involved. You require only a black and white finish If you under expose the lettering will be grey rather than a deep black. If you over-expose too far the lettering will become unsharp and tend to run into itself. Perfect prints will take a little practice. After fixing for the required time, throw your prints in the bucket of water, and then wash further in fresh water for about half an hour. Sponge lightly and lay flat face up to dry. DO NOT ALLOW THE PRINTS TO COME IN CONTACT WITH EACH OTHER DURING THE DRYING PROCESS BECAUSE THEY WILL STICK TOGETHER

TONING

There are various methods of changing the black photographic lettering of the black silver into another colour A popular method is the sulphide-ferricyanide process which gives a red-brown finish. The silver is changed to a silver sulphide which is the most stable of all finishes, passing that of ink dyes The silver image can also be changed to blues, reds and others. Any photographic formulae book will explain many of the methods Also mordant dye methods can be employed changing the image into brilliant colours similiar to colour work. This system uses dyes which cause the silver image to react to derivatives of the chemical groups of paraphenylendiamine. Commercial toners are available from the photographic suppliers and it would be advisable to rely on these ■

ANOTHER CW FILTER

Ivan Huser VK5QV
40 Flinders Ave Whyalla Stuart, 5608

A simple aid to CW reception, this filter gives a choice of centre frequency and band-width. No claim or originality is made by VK5QV for the circuit.

Thumbing through some old copies of 73 magazine recently, I came across an article describing a simple CW audio filter. This article was in fact a reprint of the original by VE3EXA, published in "The Groundwave" (April 1975), the official bulletin of the Ottawa Amateur Radio Club.

The original circuit used some rather odd values of components, but design formulae were given and with a little time spent on calculations, circuit values were evolved to give comparable performance with readily available components.

The filter is basically an active type using a single parallel tuned configuration, the heart of the filter being a "gyrator".

Capacitor Cl is gyrated to give an equivalent inductance (L equiv) which is connected in parallel with tuning capacitor Ct to form the parallel tuned circuit.

The Q of the circuit and hence the bandwidth can be controlled by shunt resistance Rs. Using values for R and Cl as shown in Table 1, an equivalent inductance of 1.8 Henry was achieved which, when paralleled with Ct (0.022 uF), gave a resonant frequency of approximately 800 Hz.

Table 2 shows how the Q and bandwidth varies with values of Rs. It has been found that with Q's greater than about 25, ringing can become a problem and with the extremely narrow bandwidth, some musical signals will in fact disappear outside the bandpass, thus making the filter ineffective. The narrow bandpass also makes receiver tuning quite difficult.

The centre frequency can be chosen to suit the preferences of individuals and design formulae are therefore included. Perhaps several values of Ct can be switched to give a selection of frequencies if so desired.

Sufficient output can be obtained to drive headphones or a loudspeaker at low level.

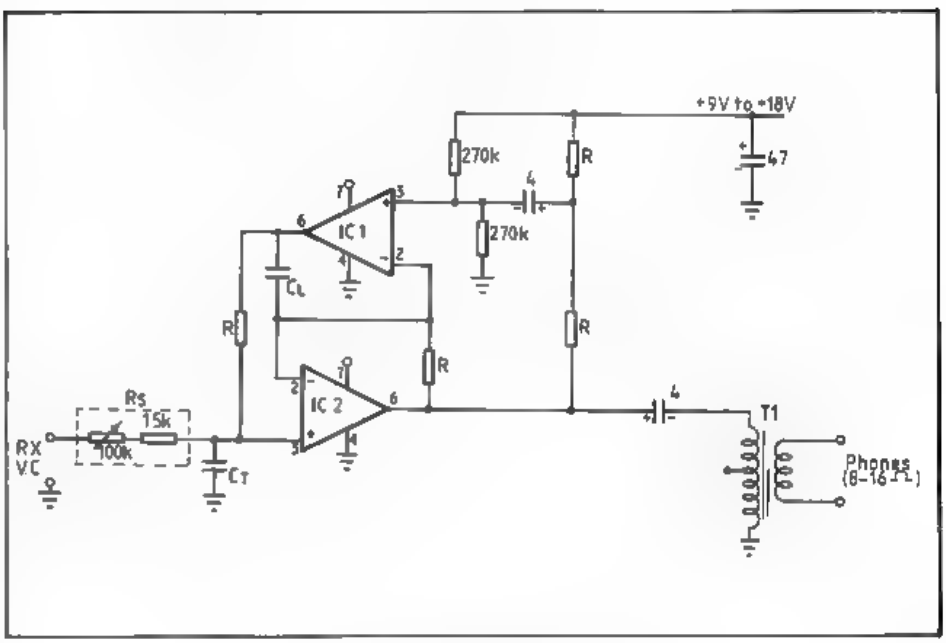

FIGURE 1

All resistors ¼ watt 5%
CT, CL polycarbonate or similar
T1 small audio output transformer
IC1, IC2 741 Operational Amplifier.

The value of supply voltage is not critical, and the unit will operate satisfactorily on voltages between 9 and 18 volts.

If you require something to improve the signal to noise ratio on CW signals, this may well meet your need.

FORMULAE

$$fo = \frac{L\,equiv = R^2 . Cl}{2\pi \sqrt{L\,equiv . Ct}}$$

$$Q = \frac{Rs}{\pi fo . L\,equiv}$$

$$BW \frac{fo}{Q}$$

TABLE 1

R	= 6.8k	L equiv.	1.8H
Ct	0.022	fo	= 800 Hz
Cl	0.039	Q:	See Table 2
		BW:	" " "

TABLE 2

Rs (k ohm)	Q	BW (Hz)
15	3.3	240
15 + 50	14	55
15 + 100	25	31
15 + 150	37	22

■

YAESU AMATEUR EQUIPMENT

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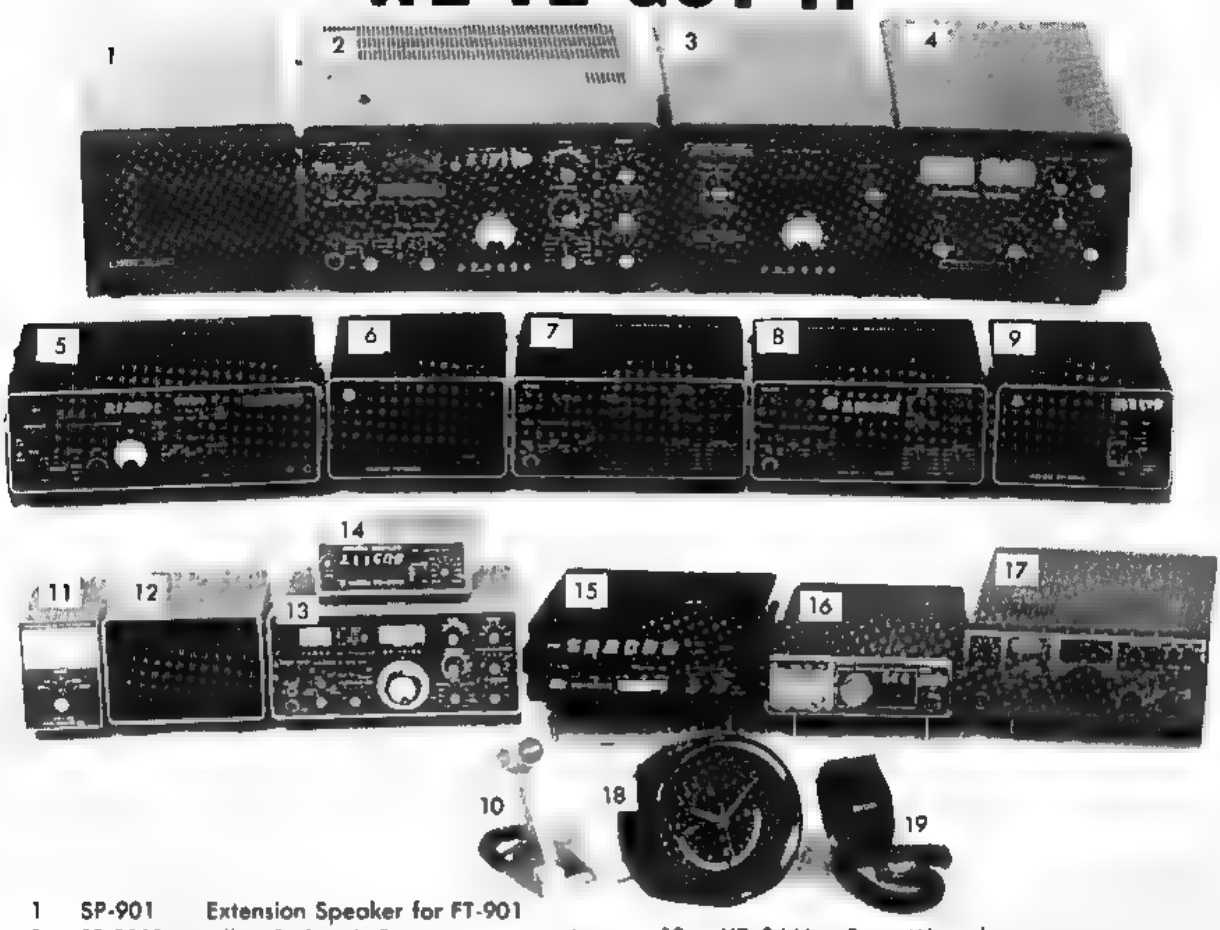

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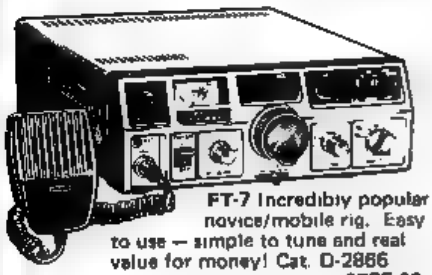

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BEGINNER'S GUIDE TO RADIO – King

This new edition of BEGINNER'S GUIDE TO RADIO continues the work of its predecessors, which have given many thousands of readers a sound basic knowledge of radio principles and practice. Gordon King has again completely rewritten the text in order to keep up to date with radio technology while reorganising and improving the description of fundamental principles.

The book takes you in logical steps from the theory of electricity and magnetism to the sound you hear from the loudspeaker. It describes the nature of the radio signal, what is involved in transmitting and receiving it (including stereo broadcasting) and what kinds of equipment are needed. Then it examines the components of a receiver and how they are built up into circuits that will do the various jobs required. Finally, it outlines the improvements that are incorporated in modern (especially hi-fi) receivers and loudspeakers.

Written in a non-technical, highly readable style, with a minimum of mathematics this guide provides the newcomer to radio with an enjoyable introduction to the subject. It will open the door to further reading and to greater skill in handling radio equipment, whether for work or leisure.

RADIO CIRCUITS EXPLAINED – King

Circuits used on modern radio receivers are examined in detail ranging from the simple transistor radio to the specialised hi-fi receiver. The book will provide a clear understanding of principles and operation and design parameters of contemporary sets. Invaluable to radio and audio service technicians, to the student and to anyone interested in radio.

110 INTEGRATED CIRCUIT PROJECTS FOR THE HOME CONSTRUCTOR – Marston

A completely rewritten edition containing a practical introduction to five specific integrated circuits. The projects range from simple low-level amplifiers to precision measuring and indicating instruments, and include a host of unusual gadgets. All integrated circuits are internationally available and all circuits have been fully evaluated by the author. The book should be of equal interest to the amateur, the student and the professional engineer.

OP-AMPS – THEIR PRINCIPLES AND APPLICATIONS – Dance

This book is intended for home constructors and other electronics enthusiasts who require information on operational amplifiers in order to use them in conventional circuits. The text is written in an easily readable and non-mathematical style and is profusely illustrated with helpful circuit diagrams. A useful glossary of terms is included.

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2 WATT 80 METRE SOLID STATE TRANSMITTER

R. A. Sugden VK2ZHS/NAT
38A Princes Street, Bexley 2207

During conversation both on and off air I found considerable interest shown, particularly by Novices, in a small transmitter that I had constructed when I first obtained my Novice licence.

The transmitter consists of a Pierce oscillator using a BC109 transistor which drives a 2N3137 power amplifier. The PA output transformer (L1, L2) is wound on a toroid and the complete transmitter fits easily on a piece of single-sided fibreglass board about 3 in. by 4 in.

The oscillator stage operated well when modern plated crystals were used, but when some old re-ground pressure types were tried the oscillator refused to operate. This was cured by increasing the value of CX from about 220 pF to 1200 pF. If plated crystals are to be used exclusively the capacitor can be reduced to 220 pF or a value which gives good chirp-free output.

Much empirical type design took place with the PA stage and quite a few different toroids were tried before settling on an Amidon type T-80-2 mix 2. These toroids are available from a Sydney AR advertiser.

The primary winding L1 was made by twisting four pieces of 26 gauge enamel wire together using an eggbeater type hand drill. Eight turns of this wire was wound on and evenly spaced over the full circumference of the toroid.

Three pieces of 26 gauge enamel are then twisted together and eight turns are wound over L1. This forms the secondary L2 of the transformer. The individual strands are well cleaned of enamel, tinned, passed through the board and soldered.

I wound the toroid from stranded wire as this was easier to get on to the toroid than solid wire.

The output transformer was quite broad in tuning and 1000 pF was found to give maximum output. L2 of the transformer was terminated with a 75 ohm load and the output was monitored using a simple diode voltmeter (see ARRL Handbook). Different values of capacitance were tried until maximum output was achieved.

The oscillator stage was found to develop quite an amount of power (for a BC109). When tested, the output of the oscillator was terminated in 470 ohms and 560 mW resulted. The BC109 ran hot at this power level and the output was reduced to 300 mW in the final version. I tried two other transistors — 2N3553 and 2N3866. These worked O.K. and gave about the same power.

Reports on air have been good for 2 watts, the transmitter keys well and is free of chirp and clicks.

Good DX!

(Note: In view of the simplicity and low Q of the PA output transformer, this transmitter may well produce significant output on harmonics of the chosen frequency. A good aerial tuner will be essential to minimise this problem.—Ed.) ■

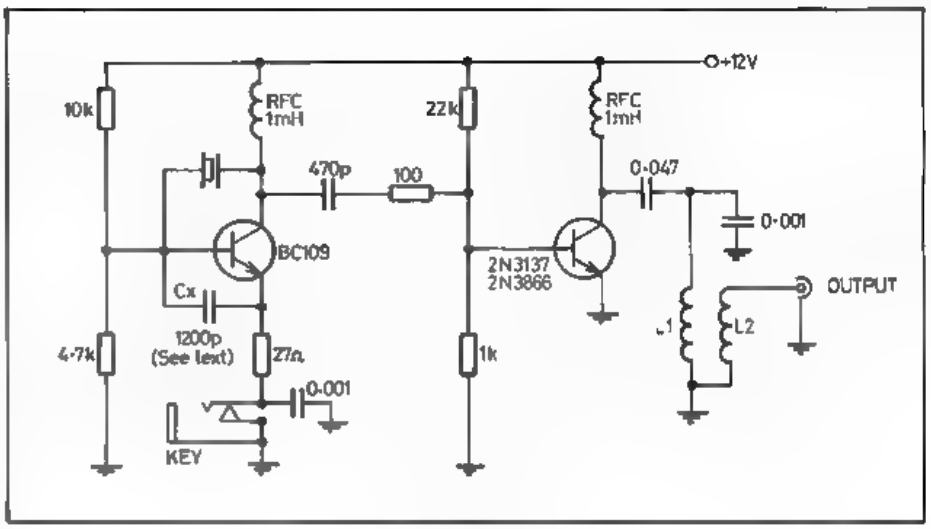


FIGURE 1

TRY THIS

WITH

THE

TECHNICAL

EDITORS

AUDIO COMPRESSOR

Here is an audio compressor suitable for insertion in the microphone lead. The circuit was originally published in PAANO, 9, 1976. No performance details are available ■

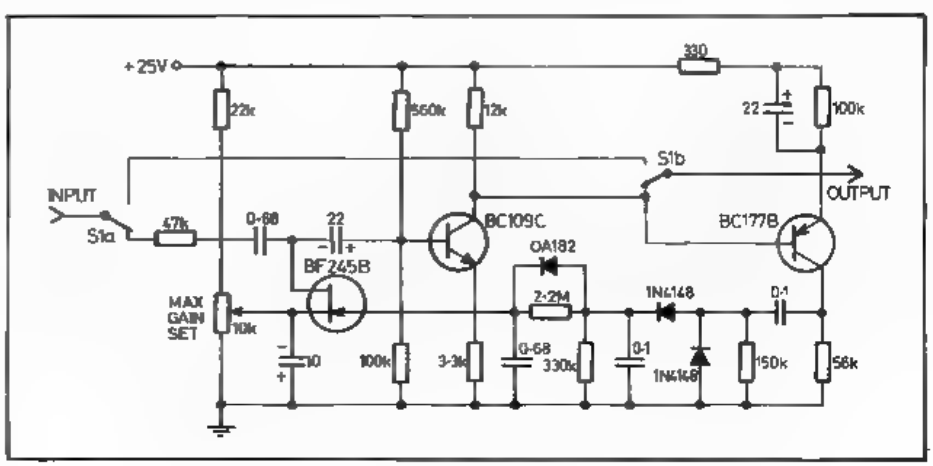


FIGURE 1

TRANSISTORS — WHAT DO THEY REALLY "LOOK" LIKE?

Roy Hartkopf VK3AOH

If you are one of the many people who feel they don't really understand how a transistor works, don't be discouraged. Even some so-called experts — people who think they are good enough to write school text-books — have no more idea how a transistor works than the next door cat. The trouble is that many of these people get involved in fancy mathematics and formulae without having a basic picture in their minds as to how a transistor really works.

There are two ways of looking at transistors. The first picture is a fairly common one, that of visualising a transistor as a combination of two diodes back to back. This is shown in Fig. 1.

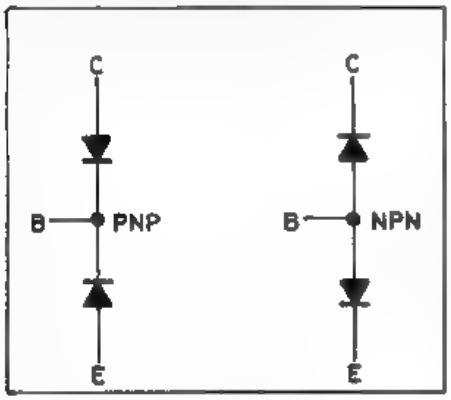


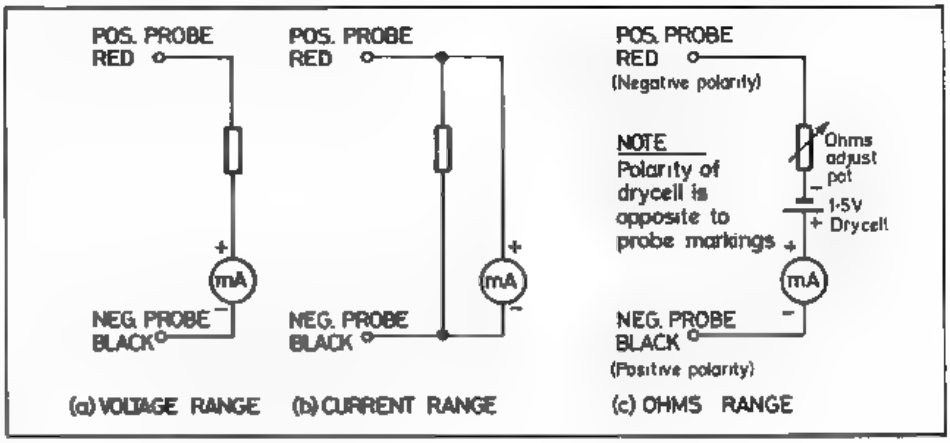
FIGURE 1

This is the kind of picture you get when you are checking a transistor with an ohm-meter. This incidentally is an excellent way of testing a transistor.

When using the ohm-meter section of a multimeter to test transistors you must remember that the actual polarity supplied by the meter is the opposite to the normal working of the probes. To see how this occurs refer to Fig. 2.

The probes are arranged to suit the meter movement polarity However on the ohms range a battery (1.5V dry cell) is used to provide a current source and its polarity as seen at the probes is oposite to that marked on the meter.

If the positive lead of the ohm-meter is connected to the base of a NPN transistor we will get a reading of a few hundred ohms to both the collector and the emitter. If the positive lead (negative probe) is placed on either the collector or the emitter there should be no reading to either of the other two terminals. The only exception is in some very large power transistors and the older type germanium transistor where there is some leakage current. But it should be very small compared to the reading in the other direction. From now on we will talk about the NPN transistor, but the PNP one is exactly the same except that all the voltages are reversed, the collector being negative instead of positive. Getting back to the NPN transistor, this will have a positive voltage on the collector and a slightly positive voltage on the base. We will look at the base voltage first. According to the ohm-meter test which we did before, the transistor looked as if it was made up of two forward biased diodes. Since the collector voltage is higher than the base voltage the one diode will be cut off but the second diode — between the base and the emitter — will still look like a forward biased diode. To put it very briefly the forward biased diode will not carry any current at all until the threshold is reached. This is about .2 volt for a germanium and .6 volt for a silicon transistor Above this level the current increases very quickly and the effective resistance of the base of the transistor goes down very rapidly. If the voltage is increased to about 1 volt the current can be up to half an amp, which gives a forward resistance of about two ohms. This is of course far too much base current for the normal transistor. The point to realise is that the voltage input gives no indication of what is happening with the transistor. The only thing which matters is the base *CURRENT*. And the collector current is proportional to the base current over the working range of the transistor, but has no relation to the base voltage. This is why a transistor is known as a current operated device. Valves and FETs on the other hand are voltage operated devices and the output *current* is proportional to the input *voltage*.



Above: FIGURE 2

So far we have explained what the base input of the transistor looks like but this does not explain how the rest of the transistor actually works. To do this we need another picture. Fig. 3 shows a rough sketch which may give some idea of what goes on. Imagine a steep cliff with a lot of loose rocks on it. A boy comes along and starts to throw stones at the face of the cliff. Every time he throws a stone it dislodges a whole landslide of loose rocks which tumble down the cliff face. For every stone which hits the cliff face maybe ten or twenty or fifty rocks come tumbling down. An this is exactly what happens in the transistor. For every electron which flows into the base there are twenty, or fifty, or several hundred electrons which flow from the collector to the emitter. And this ratio is constant over the working range of the transistor and this is what is known as the Beta or current gain of the transistor

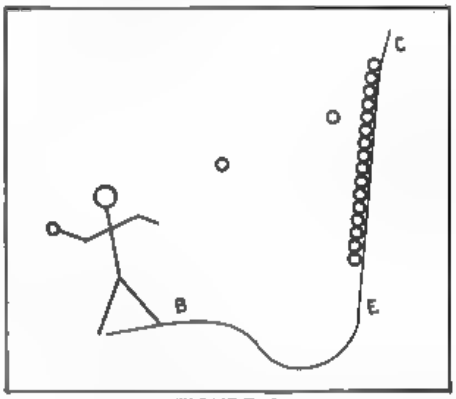


FIGURE 3

If we keep these two pictures in mind we will have a fair idea of the basic principles on which a transistor works. For checking with an ohm-meter out of a circuit it looks like a couple of diodes back to back, and for visualising how it works we have the picture of a boy throwing stones at a cliff and causing an avalanche of rocks to come tumbling down

(Reproduced by permission from "Zero Beat".) ■

TVI FILTERS — THE HIGH PASS TYPE

R. Champness VK3UG
31 Helms Court, Banalla 3672

In the excellent December 1977 issue I read an anonymous article entitled "An HF TVI Suppression Technique". The techniques described in this article are used increasingly in the war against TVI. Although the techniques are correct, except in one instance, the component values although possibly suitable in the author's case are not optimum in either filter

When designing high pass filters for attachment to the front end of TV sets, it must be remembered that all frequencies above 45 MHz must pass virtually unattenuated, particularly in fringe areas where channel 0 is received.

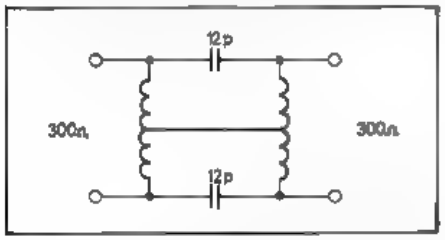
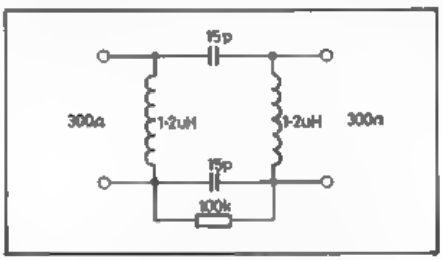


FIGURE 1A

In Fig. 1, L1 and L2 are 0.37 uH. The capacitors would probably be better to be a preferred value higher at 56 pF and 27 pF. In Fig. 2, L3 and L4 are 1.86 uH but should be 1.1 to 1.2 uH, preferably the latter. The capacitors should be 15 pF and not 12 pF. Particularly in the case of the 300 ohm filter a static leak resistor should be placed across each capacitor, otherwise high electrostatic voltages may be generated on aerials during electrical storms if no leakage path is provided from the aerial to earth. The capacitors could easily break down in these circumstances. The capacitors in all filters may be disc ceramic, preferably NPO, although N750 will do.

Whilst I agree with the author of the article regarding the use of the 1 : 1 RF transformers on 75 ohm lines, I believe from experience that this transformer is not required on the balanced 300 ohm line when the high pass filter is installed. The reason for this being that considerable opposition to the flow of HF currents is achieved by the series capacitors. There is no opposition to current flow on the braid of the coaxial cable and the transformer is needed in this case. The transformer should preferably be wound in a bifilar manner, for least losses. A static leak resistance should be connected between the primary and secondary of the transformer on the earthy end of each winding

It is interesting to note that a well designed high pass filter attached to a television receiver has two functions (1) to prevent HF transmissions from overloading the front end of the television receiver and other vulnerable parts, and (2) to reduce or eliminate the radiation of line output stages harmonic energy that can be the bain of the life of a 160, 80 or 40 metre operator when receiving on these bands. The filter stops HF energy coming down to the set and prevents HF going out through the aerial. To fully overcome this problem a mains filter may also be necessary. A filter for 300 ohm use as shown in Fig. 1a is unsuitable for attenuation of this signal, the filters in Figs. 2a, 2b and 2c are suitable. All coaxial filters must have a 1 : 1 braid breaking transformer fitted.



One of the problems with filters such as shown in Fig. 2a is the fact that it has little attenuation in the frequency region 20 to 30 MHz where a television receiver is most sensitive. This filter in itself is quite adequate for filtering out HF transmissions up to 15 MHz but quite likely to be inadequate if an amateur runs high power on 28 MHz. At 28 MHz there is only about 14 dB of attenuation. The filter shown in Fig. 2b is much more effective in the region 15 to 30 MHz having not less than 36 dB over the whole range with a notch at approximately 28 MHz of 55 dB. The graph shows the relative attenuation of these two filters, and another simple filter, Fig. 2c, which may also prove useful. Many readers may not be aware that most solid state TV tuners have a composite filter fitted to the front end of them with traps tuned in the 30 to 40 MHz range for IF breakthrough protection, and an elementary high pass filter with 10 to 20 dB of attenuation below 30 MHz.

From experience it has not been found necessary to fit filters of a greater number of sections than that shown in Fig. 2b to television receivers. It is desirable to fit an extra section to the front end of masthead amplifiers as they are broad band devices with almost uniform response from 10 MHz to 1 GHz. The extra section brings the minimum attenuation below 30 MHz to at least 55 dB. It has also been found that the fittings of filters to the aerials of some sets produces no tangible improvement and interference patterning or complete

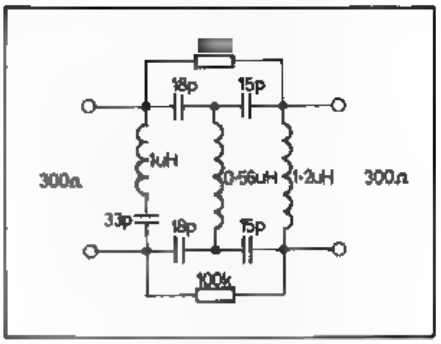


FIGURE 2B

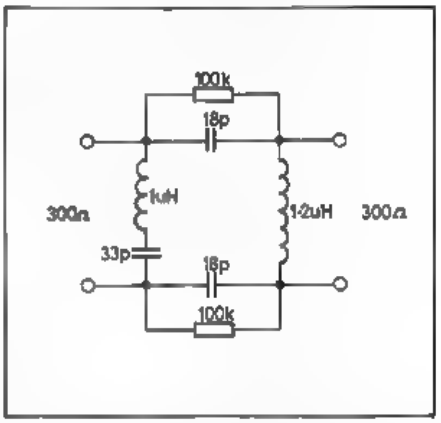


FIGURE 2C

blackout of the TV picture and sound can occur. One fairly popular colour set is quite prone to this trouble and a couple of black and white sets of around 5 years vintage are also troublesome. Research into the cure of these particular problems is being carried out, although results so far have been discouraging.

I have built a number of 300 ohm filters with good results, using commercially available inductors. They can be wound by hand, the formulae in the fundamental section of ARRL, "The Radio Amateur's Handbook", are accurate enough Referring to the December 1977 article, if L1 and L2 are reduced by 1 turn and L3 and L4 are reduced by 4 turns and spread over the same winding length and with the capacitors as shown in this article, these filters should be quite satisfactory.

For further extremely good reading on interference I would suggest that you read chapter 17 of RSGB Edition 5 "Radio Communication Handbook", and "Radio Communication" March 1976 Technical Topics, page 207. The coaxial type high pass filters with the isolation transformer fitted are available from Onsite Antennas, 122 Wanda Street, Mulgrave, Victoria. To my knowledge these are the only commercially available filters with the transformer fitted as standard.

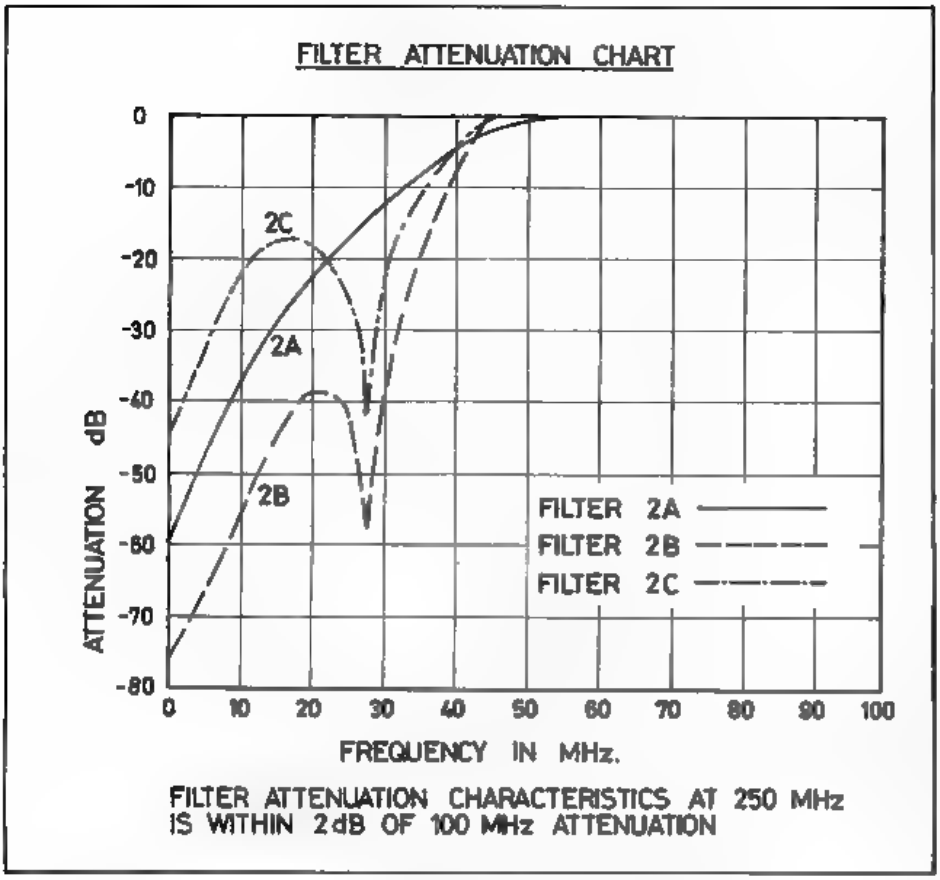


FIGURE 11

With the use of a well designed low pass filter on your transmitter and well designed high pass filters fitted to good television receivers, operation on all HF bands with the legal limit and a beam should not cause interference. Do not back away from interference problems, it is a rare one that cannot be solved successfully.

Different choices of cut-off frequency and other filter constants will yield different component values. Rodney has made a different choice to that made by the other author. We agree that grounding is essential — for safety if for no other reason.— Ed. ■

DESIGNATIONS OF AMATEUR BANDS WITHIN AUSTRALIA

160m	1800-1860 kHz
80m	3.5-3.7 MHz
40m	7.0-7.15 MHz
20m	14.0-14.35 MHz
15m	21.0-21.45 MHz
10m	28.0-29.7 MHz
6m	52-54 MHz
2m	144-148 MHz
70cm	420-450 MHz
23cm	1215-1300 MHz
12cm	2300-2450 MHz
9cm	3.3-3.5 GHz
5cm	5.65-58.85 GHz
3cm	10-10.5 GHz ■

Technical Articles Always Needed

RADIO AMATEURS OLD TIMERS' CLUB

Bob Cunningham VK3ML advises that the annual dinner for the RAOTC (Radio Amateurs Old Timers' Club) will be held in 1979 at the usual venue, Science House, Clunies Ross Building, Parkdale, Melbourne, on Thursday, 8 March. The guest speaker on this occasion will be Ray Naughton VK3ATN, who will speak on Radio Astronomy. Ray is well known, of course, for his original work on Moon Bouncing techniques. It is expected that more than 100 members will attend that year.

Membership of the RAOTC is now some 250 from all States of Australia as well as overseas.

The qualification for membership of the Club, open to Amateurs world-wide, is to have held an Amateur licence (or equivalent) for at least 25 years. There is no subscription to the Club but a charge of $2 is made for the attractive certificate of membership, plus postage.

Application to join the Club can be made by writing to Harry Cliff VK3HC, PO Box 50, Point Lonsdale, Victoria 3225, accompanied by a SEA envelope. ■

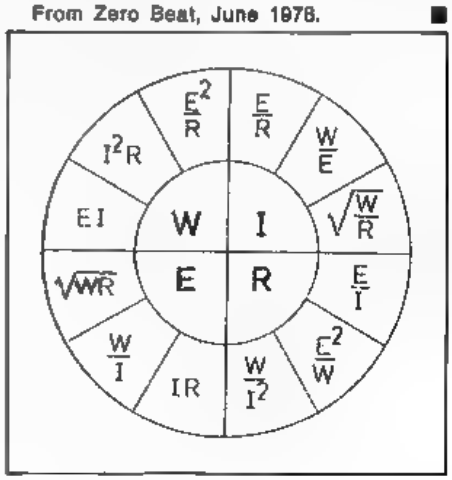
AMPS, OHMS AND VOLTS

Most of us have a fairly clear idea of what volts, ohms and amps are. We can get a good picture by thinking of them in terms of water. The electrical voltage is similar to water pressure which forces the water through pipes in the same way that the electrical pressure forces the electrons through a conductor. The constricted area of the pipes tends to slow down the flow of water and in the same way the resistance in an electrical circuit slows down the flow of electrons. Finally the amount of current flowing in the electrical circuit can be related to the amount of water in litres per minute flowing in the water pipe.

But where people often run into difficulty is when they try to make use of the formulae which connect these three things together. Most can remember that the current I equals the voltage V divided by the resistance R but after that we can get confused. And for those who are not used to algebra it is not an easy thing to transform one formula into another. A further complication comes when we are trying to consider the power in watts developed in the circuit. The basic idea of power can also be related to water. If we think a moment it is clear that the greater the flow of water the more power there will be — if the pressure remains the same. If the pressure also increases there will be still more power. So the total power is equal to the pressure and the flow multiplied together and exactly the same thing happens with the electrical circuit. The power in watts is equal to the current I multiplied by the pressure of voltage V.

In order to save the trouble of trying to remember all the combinations of these formulae we can refer to the chart below. Inside the inner circle is the parameter we want to get, and on the outside in the three minor segments are the three different combinations of current, power, voltage or resistance which will give the answer. There are a total of twelve relationships in all.

From Zero Beat, June 1978. ■



A SIMPLE AND ECONOMICAL SSB 80 METRE RECEIVER

Roy Hartkopf VK3AOH
34 Toolangi Road, Alphington, Vic. 3078

The following article will describe two modules which can be made up into a simple but surprisingly useful little receiver which is capable of receiving single sideband stations as well as Morse, and the normal amplitude modulated stations. It works on the principle of direct conversion, or zero beat.

INTRODUCTION

As you know, radio waves are individually identified because they are at a particular frequency. If these waves are modulated by speech or music there appear what are called sidebands, waves with frequencies slightly higher and lower than the centre carrier frequency. Now if we have a second carrier at exactly the same frequency as the first we find this carrier will beat with the sidebands and give an audible tone. If the two carriers are at a slightly different frequency they will also produce a beat note and this is the whistle — often called a heterodyne whistle — which you can hear sometimes when tuning in to a station.

The very old fashioned radios had a very typical whistle which was caused by this effect, and when they were tuned the whistle would start at a very high pitch and then get lower and lower gradually until it came down to nothing, that is, zero beat. Modern single sideband receivers do exactly the same thing.

So basically there are three parts to our receiver. There is the detector which detects the incoming signal and also the local frequency and beats them together. There is the local oscillator, which generates the beat frequency, and finally there is the audio amplifier section which amplifies the signal so that it can be heard through a loudspeaker.

AUDIO SECTION

The audio amplifier is constructed as a separate unit as it has many applications and can be a most useful little device to have around the shack. If you have never built anything before this is an ideal project to start on, and if you have not got one in your shack you are missing out on a most useful gadget.

What can an audio amplifier be used for? First of all it can be used as a signal tracer. If you have a radio or amplifier which is not working you can attach a probe to the input of your amplifier and touch on to various parts of the amplifier or receiver until you find a signal. This will enable you to locate where the trouble is.

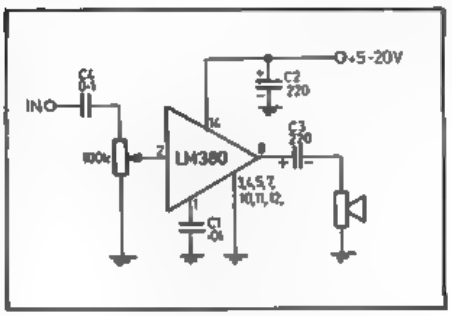


FIG. 4: Audio Circuit Diagram.

If for example the loudspeaker is burnt out you will get a signal through the signal tracer as soon as you touch the leads on to the output of the transformer, if there is one which feeds the speaker.

The if you put a diode in the input to the amplifier you will be able to check the radio frequency sections of a receiver. Then, with an audio oscillator you can use it as a Morse code practice set.

If you make a simple bridge you can use it as a detector for checking the value of capacitors and resistors and inductors.

A microphone on the input and you can use it as a lower power "public address" amplifier. If you put long leads on to the speaker it can act as an intercom or a baby alarm.

It is possible to make an amplifier using a couple of transistors and various components, but by far the simplest method nowadays is to use an integrated circuit. The National LM380 is an ideal device for this kind of job. It will work with a voltage of anything between about 5 and 20 volts and requires only about three external components to make it into a robust workable amplifier. Fig. 1 shows the circuit of the amplifier and you can see that it is very simple indeed.

Fig. 2 shows the layout of the copper side of the board and Fig. 3 shows the component layout. As long as you are careful not to put the integrated circuit or the electrolytic capacitors on the board back to front, or to connect the battery the wrong way there is nothing that can go wrong.

Be very careful to mount the LM380

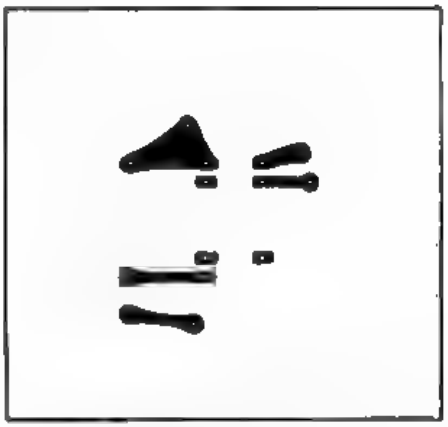


FIG. 2: Audio Board (exact size).

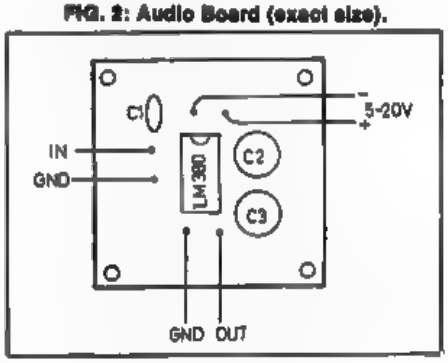


FIG. 3: LM380 mounting position and component layout.

with the nick or dot at the end as shown in Fig. 3.

You can use any small speaker with 8 or 16 ohm impedance or even a 3 ohm speaker will do if the LM380 is not driven too hard. The speaker, battery and circuit board should be mounted in a simple box so that it can be easily carried and will not be damaged.

For those who have already got a lot of goodies in their junk box, is the suggestion that an equally suitable audio amplifier could be made simply by taking the audio section of an old transistor radio and mounting it together with a battery and a speaker in a box. If you have any discarded transistor radios this method will give the same results without costing a cent.

3.5 MHz RECEIVER

The normal mode of transmission nowadays in the voice HF band is single sideband with suppressed carrier. Our receiver has an oscillator which beats with the received sideband and so creates the audio frequency signals. When it is picking up CW (Morse), the two carriers beat together and in the same way produce an audio frequency signal, so the receiver is good for Morse as well as for single sideband. The pitch of the note or whistle can be changed by varying the frequency of the local oscillator

The circuit of the direct conversion receiver is shown in Fig. 4, and it can be seen that it is not very complicated. The oscillator uses a BC108 or similar transistor and almost any silicon NPN transistor can be used. This oscillator is designed to work from about 3.4 to 3.8 MHz. The Australian Amateur band is 3.5 to 3.7 MHz.

The tuned circuit of the oscillator is between base and ground and the feedback is supplied to the emitter to cause the Transistor to oscillate. The output is taken to one of the gates of a dual gate FET, a 3N210. If it is available, the older type MPF121 is quite suitable and should not require any alteration to the circuit.

The other gate of the dual gate FET is fed from the tuned circuit which picks up the signal, and thus the signal and oscillator frequencies are mixed, and the audio beat note appears in the drain or output of the FET. Here it goes into a small audio transformer, and the output of this audio transformer is taken to the audio amplifier described in the audio section above.

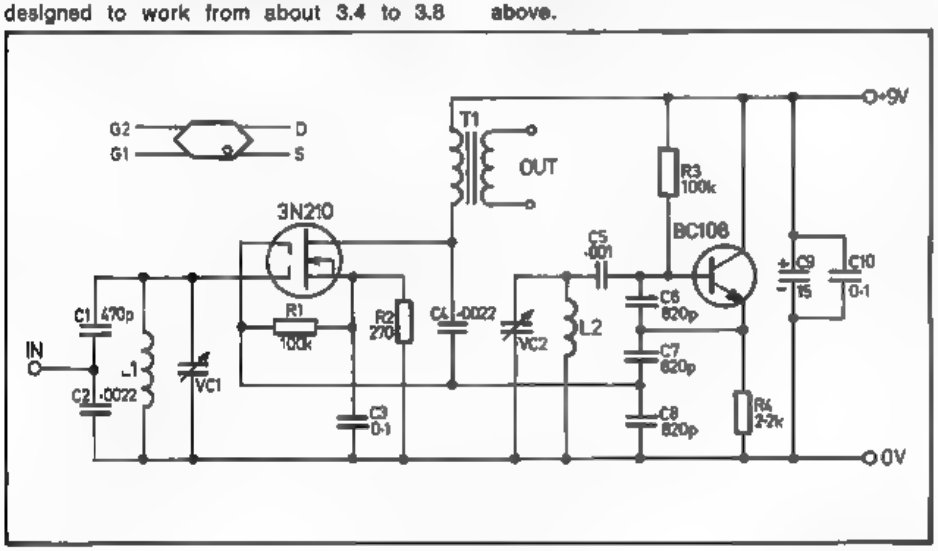


FIG. 4: 3.5 MHz Front End Circuit Diagram.

L1 & L2 — app. 30 turns on small Japanese type former or Neosid 722 former, F16 slug.
VC1 & VC2 — salvaged BC type 450 pF capacitors or similar.

Fig. 5 shows the component layout and Fig. 6 is a full size layout of the circuit board. It can be seen that the variable capacitors for tuning the signal and the oscillator are separate. It would have been possible to gang them together and have only one tuning control but this would create lining up difficulties. It is quite a simple matter in practice to tune the oscillator until a signal is heard, and then to peak it up by adjusting the signal tuning capacitor

Considering the simplicity of the receiver it is quite sensitive, but it does need a good antenna, an 80 metre dipole is ideal, for the best results. The receiver also has a tendancy to overloading when there is a very strong local signal, but as a means of getting started when you have not got anything which will resolve single sideband it is probably the best type of circuit available.

For those who intend using it as something more than a simple experimental project, it is suggested that the oscillator capacitor at least be removed from the rather limited space on the circuit board. It should be fitted with a large control knob which would make tuning less difficult. The tuning in of sideband stations can be quite critical and care is needed to make the signal readable.

Adapted from Zero Beat.

EDITOR'S NOTE:
This project is designed basically for self teaching purposes. The author has commented later that it is necessary for a well regulated 9V power supply to be used.

The audio section works well but some modifications have been made to the original design. It is hoped to publish the modifications at a later date.

In the meantime, due to the simplicity and economic viability of the receiver, we recommend to newcomers to have a go at it, and learn as your progress. ■

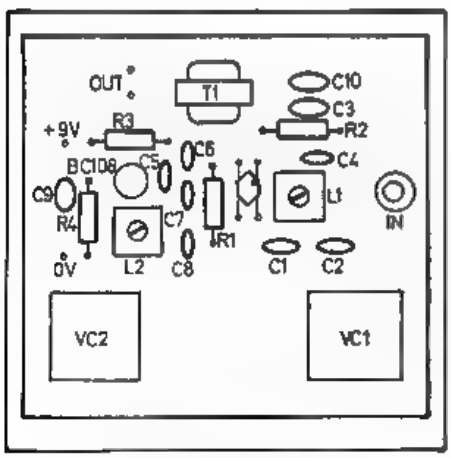
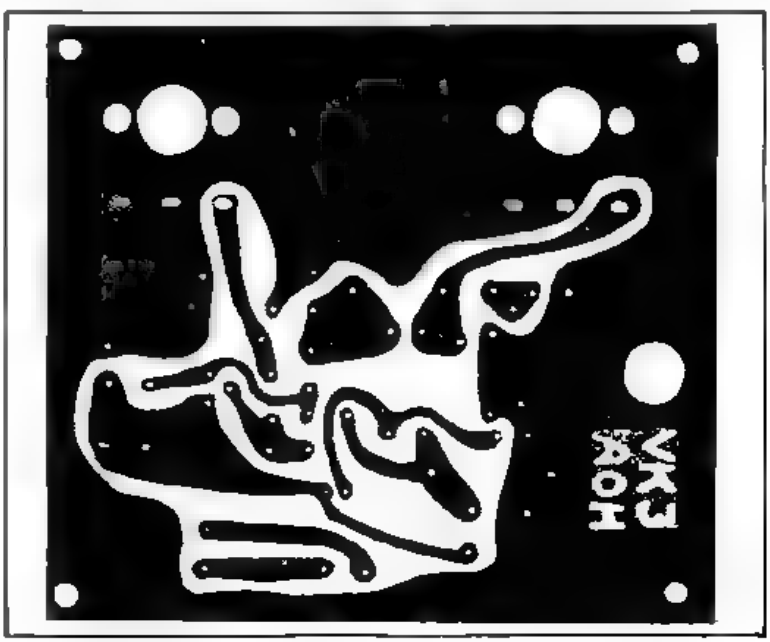


FIGURE 5:

Component layout (front end).

FIGURE 6:

Front End Board (exact size) Copper side.



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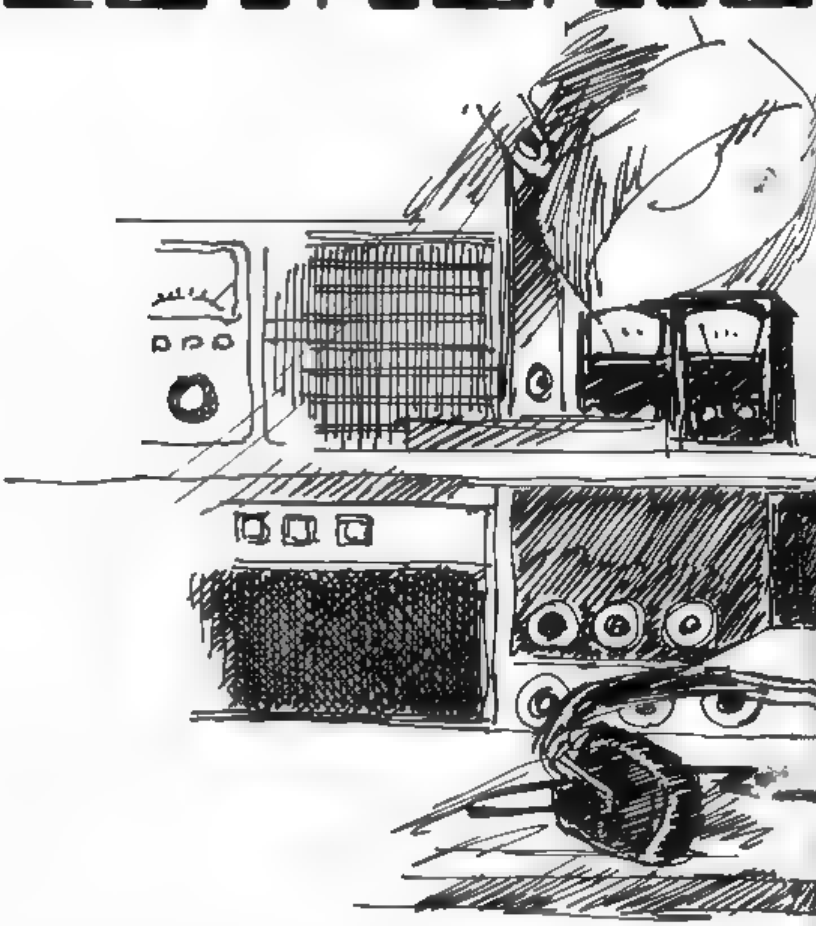

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VK/CB ACTIVITIES

Sam Voron VK2BVS

Instead of a dull, boring old AGM the members of the Amateur and Citizens Radio (VKCB) Club decided to put on a big display prior to and after its annual general meeting.

The AGM only lasted an hour and then it was back to showing the general public the fascinating worlds of radio.

Local articles in the press and announcements over radio attracted many of the folks from around Sydney who sat on the Club's AGM and participated in the Club's display, disposal table and information centres.

Photo No. 1: The dedication and work of Max Lowe in promoting CB and Amateur Radio in NSW recognised by Club members.

Max Lowe, Deputy Director of the NCRA in NSW and President of the four-wheel drive radio club, demonstrates the setting up of a portable field station. You will notice the tent, generator and portable rig, plus antenna, being assembled. Max was unanimously elected as the Club's Vice-President at the AGM. Max has been studying the morse, theory and regs., and signed himself up for the November Novice exam. He is quite confident he will get it, but until then he has taken up his new hobby of SWLing on 160 through to 10m.

The VKCB Club has been encouraging joint ventures with CB groups around the State as a means of promoting good CB usage as well as introducing the spirit and aims which encompass the hobby of amateur radio. Max and the four-wheel drive club members have been particularly enthusiastic in supporting the VKCB concept of promoting both CB and amateur activities since the Club was formed a year ago.

Photo No. 2: The promotion of WIA membership can only serve to strengthen Amateur Radio.

As in all the Club's activities, WIA publications, information sheets and membership forms are made available to the public on displays such as these.

Photo No. 3: Alan Cox VK2NYC, one of our newly licensed Club members in action. Whilst still studying for his licence, Alan assisted in the development of the Club right from the start, particularly as the Eastern Suburbs Co-ordinator and former Secretary of the Club. Alan's new position is that of Club magazine editor for "Amacit", denoting the two areas of involvement of the Club. Here you see Alan using his new FT7 transceiver.

PHOTO No 1

PHOTO No. 2

PHOTO No. 3

PHOTO No. 4

Photo No. 4: The medium and high frequency radio display.

A world map, field day photos, a chart of the bands and what happens on them and, of course, the gear make up quite a nice display.

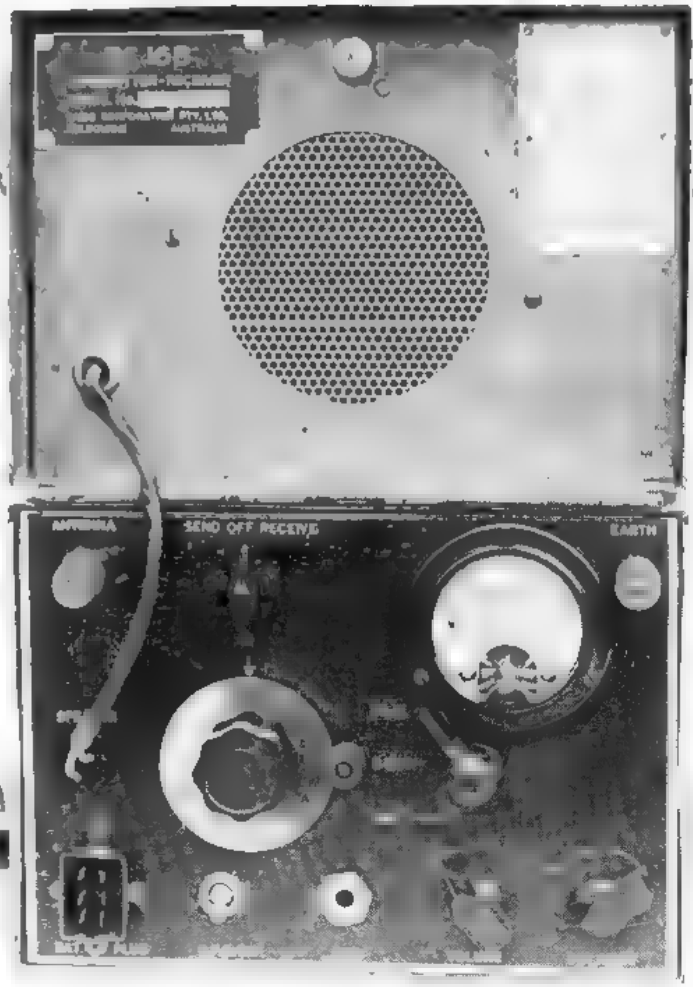
Photo No. 5: Simeon Cran VK2YFZ/2NIC at the VHF, UHF, SHF display.

Another fellow who has been involved with the Club right from its formation a year ago is Simeon; he has been quite active in a variety of ways in encouraging and helping the newcomer. Pictured you see Simeon's 2m FM rig and his 6m FM, SSB, AM, CW transceiver. ■

PHOTO No. 5

PORTABLE ARMY WIRELESS SETS OF WORLD WAR II

Compiled by R. Champness VK3UG



5. The Wireless Set No. 22T is a British designed and built portable AM/CW transceiver for the 2 to 8 MHz range, with both transmitter and receiver being VFO controlled. The transmitter is grid modulated in the AM mode. It has three EL32 valves in the final stage, the Australian version of the same set uses one 807. The output power on CW is estimated to be between 8 and 12 watts. The set operates from a single vibrator supply from a 12 volt accumulator.

A complete station, including the set, accumulator and aerial systems, could be packed on the backs of three men, certainly not a light load. These were one of the first sets to use semi-break-in keying on CW.

The English No. 22 set set the pattern for the Australian No. 22 yellow band series, which is similar in concept but uses the valves more commonly available in Australia at that time. Subsequently the yellow band set gave way to the Australian designed No. 22 and probably the ultimate in its class, the No. 122. The British set is not a particularly marvellous set in my opinion, and it was ultimately superseded by the No. 62 set, a robust and probably

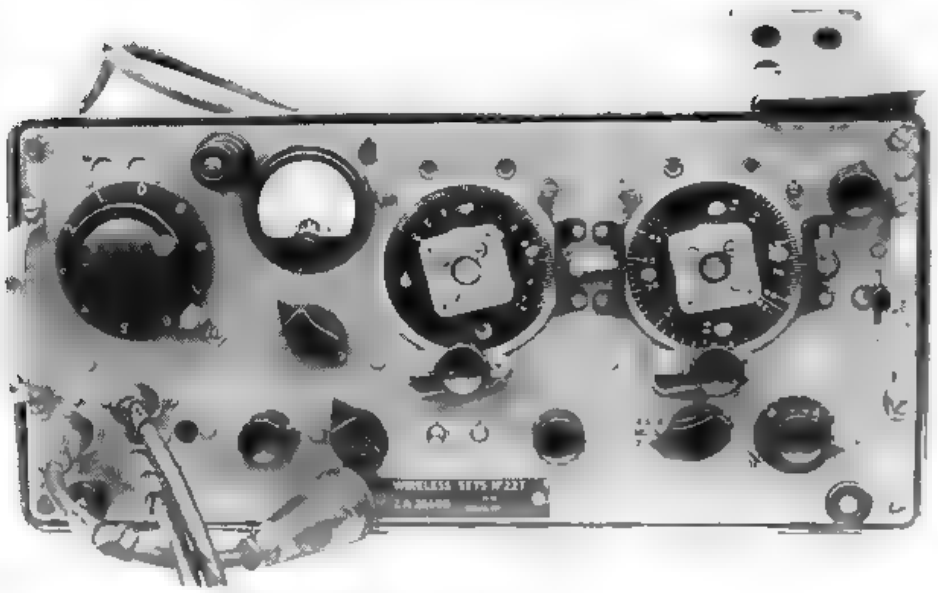


PHOTO 5 — Wireless Set No. 22T.

reliable set, although it, too, had many deficiencies.

6. The RC16B was known under several different titles, depending on whether it was being used by the army or air force. There are two versions of this transceiver, one having one xtal locked transmission frequency and the later model had two. The transmitter and receiver are both capable of operating on AM and CW. The receive is tuneable between 3 and 7 MHz. The set is designed to work off dry batteries, which have to supply 3 volts, 135 volts, 80 volts, and 4.5 and 7.5 volts of bias. The set uses 2 volt valves which were designed to use with 2 volt accumulators. The filament drain on receive is .58 amps and a whopping 0.78 amps on transmit. On the HT side the drain on receive is 16 mA and on transmit about 50 mA. The dry batteries to run such a set for any length of time would be monstrous in size and heavy. Not my idea of a portable set. This is one of the few sets where a loudspeaker is standard equipment.

The receiver performs quite well, is fairly sensitive and smooth to operate. The transmitter oscillator is not an eager starter and needs to be tuned carefully for reliable oscillation. The transmitter puts out between 2 and 2½ watts, and is plate modulated by a class B modulator, which is most unusual in a dry battery operated set. Radio Corporation used class B modulators to provide high level modulation in many of their sets. Many of these sets were used by the Forests Commission of Victoria until better sets became available. I don't think that amateurs would have used these sets because of the high current drain and low output power. Completely converted to 6 volt valves and run from 240 volts they could have done a reasonable job for amateurs. ■

NOVICE NOTES

MEASURING RF LOSS IN COAXIAL LINES

The efficiency of your coaxial lines may be determined by measuring the line loss at your operating frequency. You can do this by merely short circuiting the far end of your coaxial line and measuring the standing-wave ratio with your SWR meter. If there is no line loss whatsoever, the SWR reading will be infinite (full scale), indicating that the reflected wave is equal in amplitude (size) to the incident wave. In a real-life situation, of course, this is not the case, and the SWR reading under the test condition will be less than infinite, due to line loss.

In order to make this measurement, the antenna termination is removed from the far end of the transmission line and the outer shield is firmly shorted, a really short short, to the inner conductor of the line. A small amount of power at the required frequency is applied to the line through the SWR meter. The meter is adjusted for full scale reading on the "forward" position, and the meter switch is then thrown to the "reverse" position. The line loss may then be computed from the reverse reading and the chart in Fig. 1.

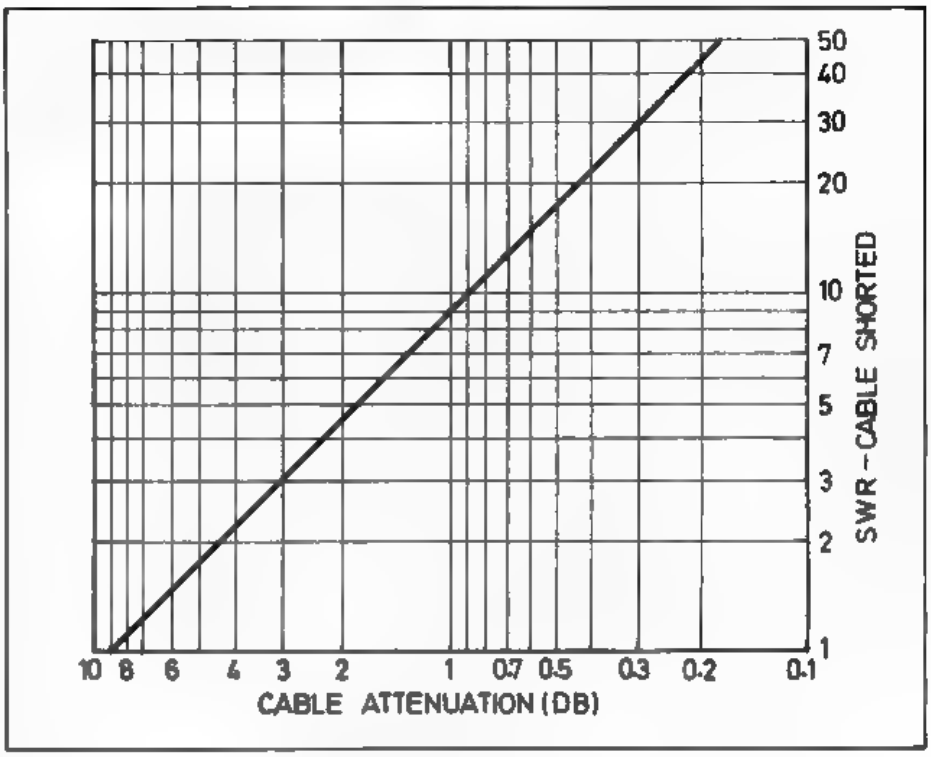


FIGURE 1

If, for example, the SWR turns out to be 4.5, the cable loss (attenuation) is 2 decibels. This means that your coaxial line is about 63 per cent efficient, and that 37 per cent of your transmitter output power is being lost in the line. If the SWR reading, on the other hand, is 9, then your line loss is only 1 decibel and your line is about 80 per cent efficient.

From "The Lyrebird", Winter 1978. ■

NOT SO YOUNG!!

Harry D. Alderson VK2NSR
P O Box 1084, Coffs Harbour, N.S.W. 2450

One tends to regard the Novice as a young man — often a schoolboy. So here is a new breed of Novice operators appearing on the scene. The ex-serviceman now retired but an ex World War II operator making a comeback, often slow and painful.

Harry is in his 60s, an ex RAAF Wireless Telegraphist with over five years experience as an operator in aircraft, ship's operator, but mainly ground installations in the south-west Pacific area, and was discharged from the RAAF in 1946.

He resumed his peace time occupation as a steam and electric locomotive driver with the Victorian Railways for more than 30 years.

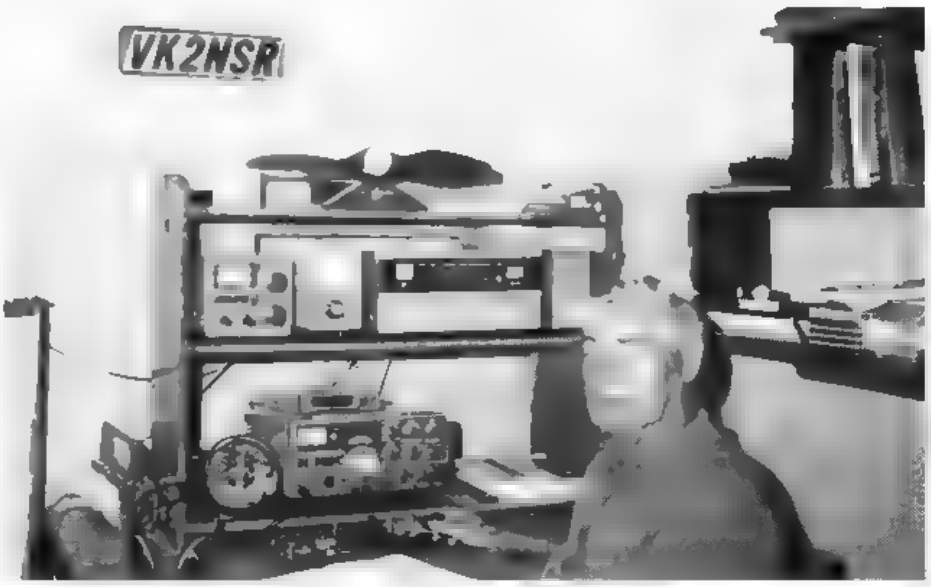
Equipment in use is a modified TS520S into a half wave dipole 50 feet high running north-east and south-west.

He became operational 23-7-78 on the 80 metre band, CW only, and has worked all Australian States, New Zealand and into Irianjayia (Java).

Harry qualified for the Novice licence in Melbourne, October 1977, and expresses thanks to the patient coaching from the WIA Novice class instructor, Miss Norma Boyle VK3AYL.

He would like to comment on the help given by full call amateurs who are always on hand to assist the newcomer.

Harry hopes to work 10 and 15 metre bands later this year — CW only. ■



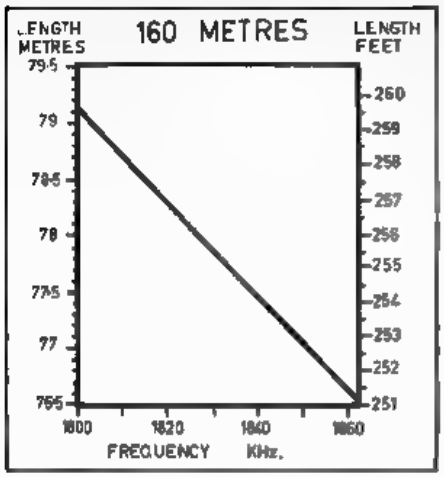
Harry Alderson VK2NSR.

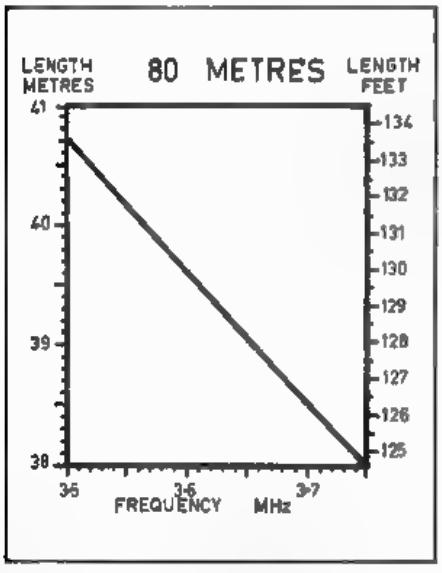
WIRE HALF WAVE DIPOLE AERIAL LENGTHS

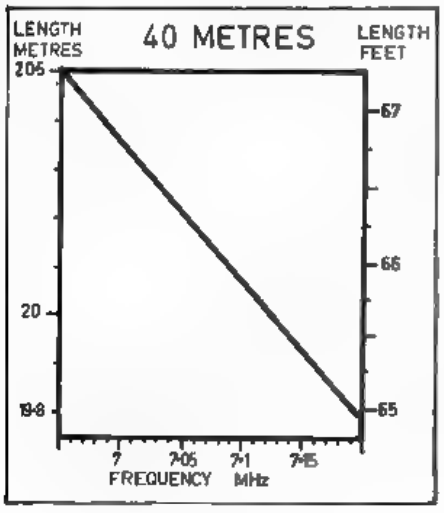
The following charts of half wave dipole lengths are based on the theoretical half wave length shortened by 5 per cent to allow for wire thickness and end effects. If the aerial is close to the ground or other objects some further pruning may be necessary. This will be the case if an inverted Vee or sloping dipole configuration is used or if the antenna is surrounded by trees.

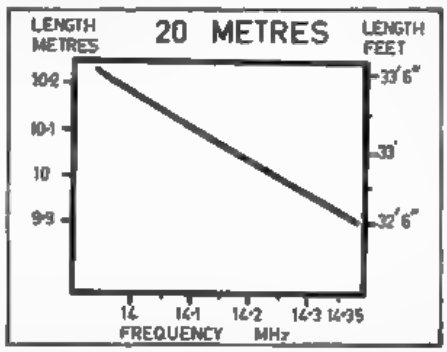
The wire size envisaged is between 16 gauge and 10 gauge and this would include the common copper earth wire type of 7/0.029.

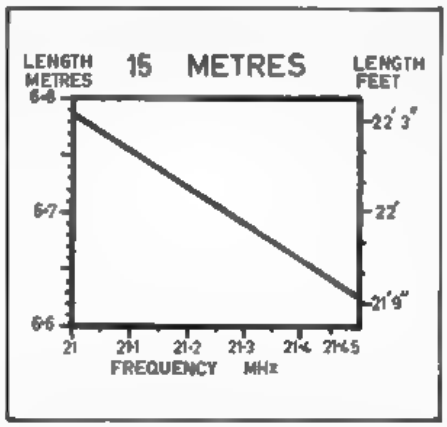
When erected the dipole should be checked for feed impedance or SWR in the band. The antenna length should then be adjusted to give a symmetrical SWR curve in the band. This SWR curve may be obtained by plotting SWR for various frequencies in the band. A similar result may be obtained by plotting feed impedance using a noise bridge or an antenna scope. The use of a noise bridge or an antenna scope will result in least interference to other band users as a signal does not have to be radiated and is preferred. ■

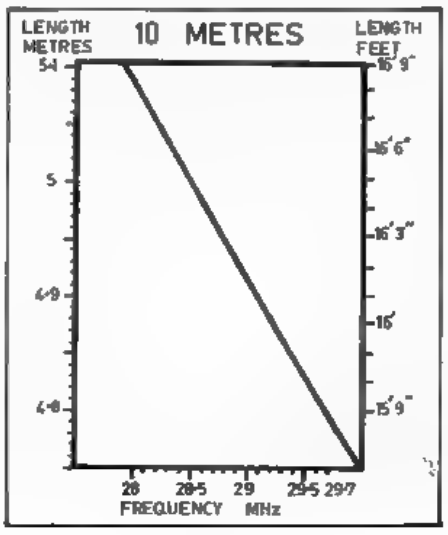












AUDIO BLANKER

Here is a circuit that will work well in receivers that do not have a narrow filter.

This simple audio-stage noise blanker will reject most repetitious, pulse-type interference, like radar and automobile ignition spikes, that often plagues AM receivers. The circuit is both less costly and far less complex than the radio-frequency stage blankers employed in some of the more sophisticated receivers, and though not as effective in eliminating interference, it outperforms the more commonly used noise-limiting audio-clipping circuits.

The blanker shown in the figure detects whether the amplitude of an offending pulse train at the output of the receiver's envelope detector exceeds a set threshold and then disables the output stage if necessary. Waveform diagrams are shown at several circuit points to help clarify operation of the blanker.

A typical amplitude-modulated signal might appear at the input of an AM receiver as shown in the upper left of the figure, where a 20-megahertz radio-frequency wave, modulated 30 per cent, is overridden by radar pulses 20 decibels greater in amplitude. A time-magnified portion of the AM detector output, after passing through an inverting operational-amplifier stage, would appear as shown, where the maximum amplitude of the pulse would be limited by the saturating level of the intermediate-frequency amplifier. Only two offending pulses are shown for clarity, but this detected signal contains a pulse train of sufficient amplitude and repetition rate to generate a substantial pulse noise and so impair the readability of the signal.

The interfering spikes increase the effective modulation percentage to well over 100 per cent. The blanker is triggered into operation when the modulation peak exceeds 140 per cent, whereupon Q_1 and Q_2 switch on and disable signal-gate Q_3 for the duration of each spike. The 140 per cent threshold has been experimentally determined as the point at which the interference caused by the blanking operation itself is still less than the interference generated by the offending pulse train. Note that to ensure that the blanking action occurs at the set modulation peak independently of signal-level changes, the receiver's automatic-gain-control signal is introduced at the threshold bias point at the emitter of Q

Q_3 operates with no applied DC voltage so that no switching transients will be generated by the blanking action to impair circuit performance. Q_2, R_1, and C have a fast-attack, slow-decay characteristic. Q_3 is thus gently turned on after a spike has passed so that the popping and clicking sounds that often accompany the operation of a blanking circuit that processes a randomly occurring train of spikes will be further suppressed

The results of the blanking action are shown at the output of Q_3, where it is seen

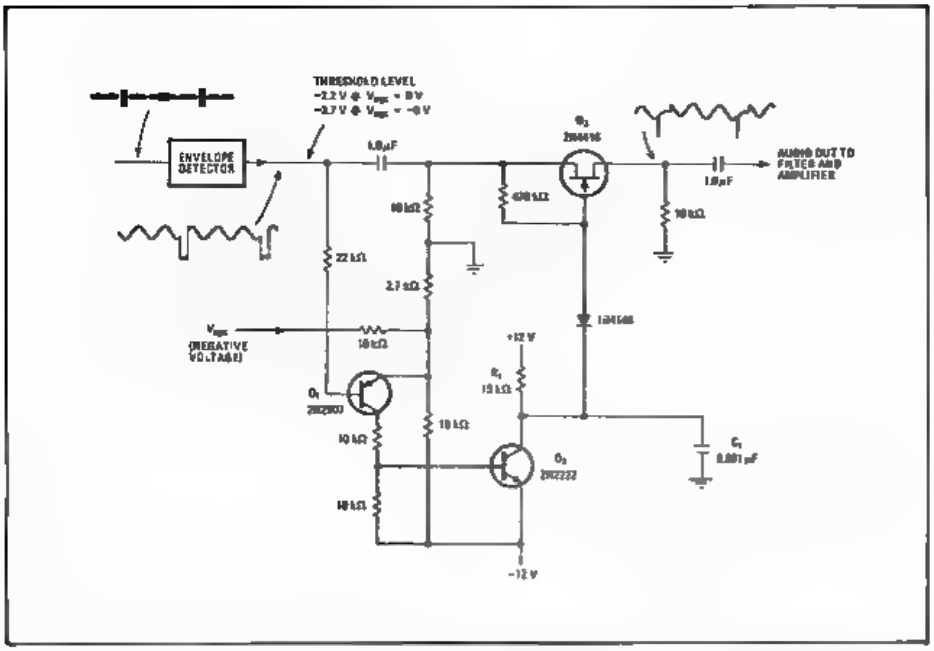


FIG. 1: Spike Eater. Audio-stage noise blanker, although not as effective at eliminating pulse-type interference as RF-stage blankers, out-performs noise limiter/clipper circuits.

that only brief transients appear. The signal is slightly distorted, but the distortion is barely audible. There is a great improvement in noise reduction, however.

Reproduced from Electronics, July 6th, 1978. ■

IS AMATEUR RADIO NECESSARY?

Remember the EEB a few years ago? The following item appeared in their February 1973 issue, and was reproduced in AR of April 1973.

We are reprinting the article again for the benefit of our newer members as the message contained therein is very relevant in today's climate.

Read this article twice, then take some action for your own hobby's sake.

A. Have another beer.
B: Don't mind if I do.

A. What are your thoughts on Repeaters?
B: All in favour of them. You fellows are squeezing into less and less space.

A· Well that's good isn't it? We're using the bands more efficiently.
B: Yes It certainly is good There are a lot of other chaps who want that space, and it looks as though they ought to have it.

A. Oh?
B. You realise, say, that 80 metres is ideal for people doing work in the outback?

A· But why 80m? Why not 81m?
B All right but they want 80m, and the equipment is already commercially available.

A: But we have already got plenty of amateurs on 80; just listen to the QRM any week-end.
B: But how dead is it during the week? And what is to prevent you from doing all your operating with VHF repeaters? You could get nearly as much DX from a chain of repeaters as you get from 80 metres.

A: But that's not fair! A lot of blokes prefer to build HF equipment which is less critical of components and adjustments than is VHF gear.
B: Oh yes, and how many people do build their own any more?

A: Plenty; the amateur magazines are full of constructional articles.
B: Do you build?

A: Well no, but that's a special case; I've just got too much to do for the wife and my job.

B: It's not so special; when more people were constructing they were just as busy. But let's return to the original point. You chaps have already lost a large slice of 80 to commercials who do in fact use it constructively. You can hardly assert that most of amateur operation is constructive nowadays. Furthermore repeaters show that you can operate on much less space than you have been given Why, for instance, should you have 4 MHz on 2 metres when in fact you produce the most activity there from FM contacts using some 3 MHz largely unoccupied.

A: But the low end is certainly occupied very heavily by SSB, etc
B: Sure, some 200-300 kHz worth; that's heavy?

A: We have to plan for the future, more amateurs will need more frequencies.
B: The present channel spacing could be reduced, and more amateurs could be put into each band segment.

A: This would turn amateur operation into one great net.
B: Isn't that the direction its going now?

A: How about individualists who don't want to be crowded in with the others?
B. Let's keep our priorities in mind. The important thing is not what amateurs want but what societies need.

A: I suppose that society "needs" space in 40 and 80m while there is ample space available to them outside of our bands?
B: There is such space, but you must admit that the propaganda stations find a hand-picked audience already at hand in the amateur bands.

A: Amateurs are not interested in propaganda!
B: Then why don't more of them jam the broadcasts of the intruders? Only a tiny signal sitting one of their frequencies can cause havoc.

A: Amateurs have more important things to do. The fact remains that the intruders have no business being there; are you supporting their propaganda activity?
B· Certainly not. Arguments have in fact been advanced in favour of your having more space in 40m, but this was opposed by the government of Infrabovia — with whom we are presumably on friendly terms. What more can be done?

A: At least we shouldn't lose the frequencies to which we are entitled.
B: Are you entitled to them?
A: Yes, we were given these frequencies by International agreement.

B: Modern tendencies toward band-sharing show that this agreement is no longer as valid
A: But that's not fair!
B: So? What have amateurs done in recent times to justify their use of the bands?
A: Training new technical talent?
B: That's taken care of nicely by commercial and military training programmes.
A: Civil defence?
B: This is already handled very competently by governmental agencies.
A· Message handling?

B: Not significantly outside of North America, and look at the mess it has become over there. They are even phone patching commercial transactions now!

A: At least amateur radio provides a healthy hobby for a large number of people.

B. Have you listened to the bands recently?

A Of course.

B. Do you call "healthy" the kind of discourtesy, bad operating and incompetent operating heard there?

A: That's only a noisy minority

B: You can't convince the public of that.

A: (Smugly) Most of our operation is on SSB and the public can't receive that, so they don't matter

B. The commercials can, and they do matter. And they want your frequencies. You have shown that with the aid of repeaters you can do with far smaller bands. You have shown by scanty use you need far fewer bands. And you have shown by incompetence and poor operating that you are jolly lucky to have any frequencies at all.

A: If you destroy radio you'll be destroying a large commercial enterprise.

B: Who's destroying radio? Only amateur radio; there is much commercial and service opportunity in other directions. Already component manufacturers are recognising this by largely ignoring amateur complaints about component scarcity. The big production goes where the big money is: in the entertainment and commercial communications markets.

A: (Gasp) I need another beer.

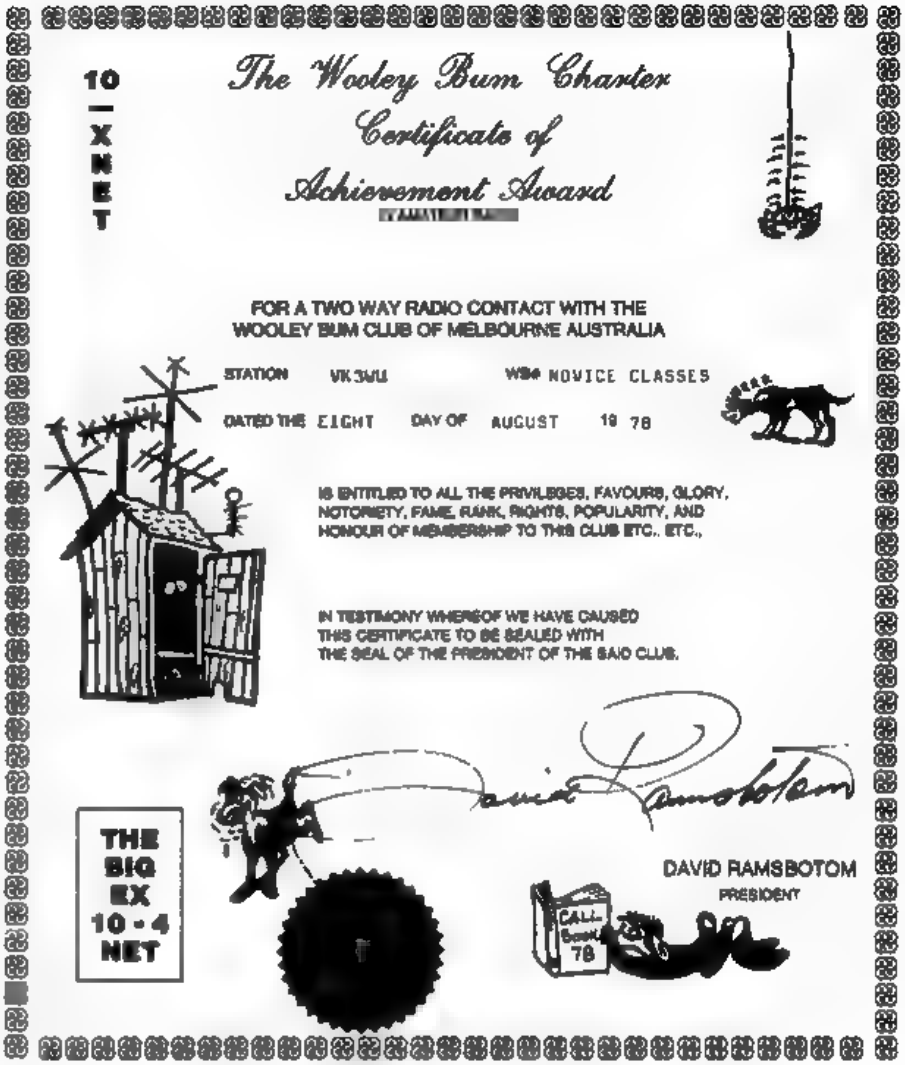
B: Me too. May I make a suggestion I hope you'll pass on to your mates. You'll have a better chance of keeping the bands if the intelligent majority accepts some responsibility for pulling the Clods back into line. This requires the individual responsibility, and that means you and your friends. **If you do nothing, you'll get nothing.** ■

WOOLEY BUM CERTIFICATE OF ACHIEVEMENT AWARD

Alan Greening VK3WU has advised us of the formation of the "Wooley Bum" Club.

The Club consists of ex 27 MHz "Bootleg" operators who approached Alan for information on upgrading to amateur radio.

Alan has conducted Novice courses for these people and to date over 90 ex pirates have obtained their Novice licences and settled down to enjoy the benefits of amateur radio operation



Alan is to be congratulated on his efforts and we trust that only good can come from the acquisition of these Novices.

The Club conducts their rag chew net each Sunday on 28.570 MHz ± QRM at 10.00 hrs. EAST (2400Z and 0100Z during local daylight saving time)

To gain membership to the Club, 10 points are required to qualify. Points are obtained as follows:—

QSOs with cert. holder No. 1, 10 points, QSOs with cert. holders Nos. 2-49, 3 points, QSOs with cert. holders Nos. 50-99, 2 points; QSOs with cert. holders Nos. 100 up, 1 point.

Send details of your QSOs to:—

Awards Manager,
David Ramsbotom,
PO Box 212,
Prahran, Vic 3181.

Plus membership certificate issuing fee of A$3.00 (to cover printing costs and airmail world-wide).

Further information may be obtained from —

Alan Greening VK3WU,
PO Box 160,
Glenroy, Vic. 3046
Ph. (03) 42 1616 (bus. hrs.).

EDITOR'S NOTE:
Whilst some of our members may have some reservations regarding the activities, and particularly the "name" of the above Club, we nevertheless recognise that any attempt to educate CBers in upgrading to amateur radio through the normal legal processes deserves credit

We therefore make no apologies for the publication of this item and look forward to further contributions/articles in this area. ■

Please avoid late Subscription Payments

WIA MEMBERSHIP

As you know the WIA is made up of seven Divisions plus the Federal body.

Only the seven Divisions are members of the Federal WIA, nobody else.

Individual persons are members of a Division — normally the WIA Division of the State in which they live.

The Federal WIA keeps central EDP records on behalf of the Divisions. The Federal body also collects and processes individuals' subscriptions on behalf of Divisions. The Federal organisation has an office in Toorak, Victoria, but is not a part of the Victorian Division any more than it is a part of any other Division. The Federal body publishes AR on behalf of the WIA as a whole, it represents amateur radio both nationally and internationally and carries out some other services on behalf of members (e.g. Magpubs).

But you, as a member, in general look to your Division for your requirements. The Division appoints members, is responsible for membership gradings and deals with enquiries from its members. The Division also handles all local (i.e. State) affairs, representations to State Radio Branches, dealings with local WIA (and other) Clubs and Zones, QSL bureau and many other functions.

It serves no purpose writing to the Federal WIA about any of these things because your enquiry will only be sent forward to your Division and delays can occur. As a general practice the Divisions do not have the services of paid staff. Divisional work is done by the volunteers you have appointed to your Divisional Council.

Each Division is a separately registered company under the Companies Act and has its own constitution. The Federal WIA is also a separate company with its own Memorandum and Articles of Association. Since the whole is the WIA, there is an enormous amount of liaison between the separate organisations. This is exemplified, for example, in the annual Federal Convention.

These brief explanations are designed to show you how the WIA operates and why you have to take up with your Division any membership and other questions which arise.

For very practical reasons, however, corners have to be cut so that work is not delayed for unimportant reasons. As one example, if you were a student last year, but not this year, and hence pay to Federal office the full subscription rate for this year, instead of the previous concessional rate, you will be re-graded upwards (upwards in terms of subscription rate) automatically. But if any re-grading would necessitate payment of a lower rate, the Federal office cannot re-grade you. This has to go back to the Division.

Again, each Division has its own definition of what a pensioner is, or what criteria qualifies a person to be a student. The same principle applies when Divisions appoint honorary life members, although there is a common denomination — service to the Division.

At the 1978 Federal Convention the Queensland Division brought forward an Agenda Item to obtain agreement on the qualifications which appeared desirable before any member could be appointed an honorary life member of the Division. In the event the Agenda Item was withdrawn after considerable discussion.

It is interesting, however, that Divisional Councils do make a very careful value judgement before appointing anyone to life membership. This is a step not taken lightly, if for no other reason than financial. The Division has to pay for its life members — for example, the Federal element of annual subscriptions, for a start.

How then, you could be forgiven for asking, does the Institute honour anybody who puts in outstanding work in the Federal sphere — as an outstanding member of the Executive or one of the specialist Executive Sub-Committees. This is achieved only by agreement between the Executive and the Division concerned, because only the Division has the power to appoint or re-grade its members. When agreement is reached, all the costs of such a life member are borne by the Executive. As such a person worked hard for the WIA as a whole, the WIA as a whole (i.e. the Federal body, namely the Executive) pays for him.

For services in the Federal sphere we find a number of well known amateurs are life members of the Division, but paid for by the Executive.—

Horrie Young VK3AYH (now VK2), Bill Gronow VK3WG, George Hannan ———, Ron Higginbotham VK3RN, Max Howden VK3BQ, Max Hull VK3ZS, Ray Jones VK3RJ, Michael Owen VK3KI, Ken Pincott VK3AFJ.

There is one life member in the ACT Division taken over from VK2.—

Arch Cox VK1GU.

The NSW Division has honoured 12 to life membership.—

Ces Bardwell VK2IR, Major Collett VK2RU, Dave Duff VK2EO, Alan Fairhall VK2KB, Bill Hall VK2XT, Pearce Healy VK2APQ, Keith Howard VK2AKX, Mrs. McKenzie ———, Bill Moore VK2HZ, Bill Otty VK2ZL, R. H. F. Power ———, Lionel Swain VK2CS.

In the Victorian Division there are seven

Bob Anderson VK3WY, Reg Busch VK3LS, John Lancaster VK3JL, Cliff Pickering VK3ATP, Herb Stevens VK3JO, Jim Stewart VK3AS, Peter Williams VK3IZ.

The Queensland Division have four:—

Peter Brown VK4PJ, L. J. Feenaghty ———, Arthur Walz VK4AW, Norm Wilson VK4NP.

There are five in South Australia:—

Brian Austin VK5CA, V. R. P. Cook VK5AC, George Luxon VK5RX, Geoff Taylor VK5TY.

Western Australia also has five:—

Ron Hugo VK6KW, George Moss VK6GM, John Park VK6BB, Neil Penfold VK6NE, Jim Rumble VK6RU.

Tasmania has honoured five:—

Tom Allen VK7AL, Jack Batchler VK7JB, Joe Brown VK7BJ, Terry Connor VK7CT, Snowy Harrison VK7CH.

A grand total of 47 on the records. Unfortunately space does not permit listing all those who have passed on, although there were many. All these worthy amateurs, many of whom still work voluntarily for the Institute, have done their share towards making amateur radio what it is today. The amateur radio of tomorrow is what we make of it today. ■

QSP

SWLing

The June 1978 copy (No 53) of DX Post, put out by the Southern Cross DX Club, GPO Box 336, Adelaide SA, 5001 contains a very great amount of information useful to short wave listeners. Lists of stations heard, notes on receivers and some articles of general interest. This club is a member of the WIA South Australian Division. The newsletter also contains references to other DX clubs including the Down under DX Circle of Melbourne.

AMATEUR EXAMINATIONS — THE

The following is an extract from a short report in Short Wave Magazine for April '78 and will be of interest to instructors —

"From 1979 the Radio Amateur's Examination will be in the form of objective tests containing multiple-choice questions, and anyone preparing alone for his or her amateur licence and living in the London area, may be able to assist the City and Guilds of London Institute.

"In preparation for this change the Institute is to pretest objective questions, trying them out on candidates who have reached examination standard. Pretests are intended to test the performance of individual questions and syllabus coverage. Information is obtained which assists the Institute's reviewing panels in judging whether each individual question should be included in the question bank for use in future examinations."

USA BAN ON LINEARS

Ham Radio April '78 reports the banning by FCC of the commercial manufacture, distribution and sale of any RF power amplifier covering the 24 to 35 MHz range. Amplifier sales between individual amateurs are still permitted to build their own 10-metre linears. Also there will be a set of type acceptance requirements on amateur amplifiers below 144 MHz. All these are to become effective, subject to challenges, from dates to be specified. ■

YAESU

bail

ADVANCED AMATEUR COMMUNICATION EQUIPMENT

FROM A WORLD LEADER —

YAESU

YAESU

FT-901 De-Luxe HF transceiver

FT-901DM DE-LUXE SSB, CW, AM, FSK, FM, HF TRANSCEIVER, 160-10m, P.A. 2X6146B, Dig. readout, freq. memory, elect. keyer, rejection tuning, variable IF, audio peak filter, automatic tune-up timer, AC-DC operation, etc. etc. A host of new advanced features including, of course, Yaesu's up-to-date modular construction utilising plug-in circuit boards to minimise service time. See review in "Amateur Radio" Oct. '78. This symbol of technical excellence is real value for money at **$1595.**
(Mic., English Language Inst. Book, Connectors, and Pwr. Cables are included)
FT-901D, less keyer, memory, DC-DC, **$1375.**
FT-901DE, less FM, memory, DC-DC, **$1348.**
FV-901DM Synthesised scanning external VFO, 40 memory storage, electronic tuning, etc. **$475.**
FC-901 Antenna coupler, 500w, inc. SWR and PWR meters, ant. switch and connectors, **$272.**
YO-901 Multiscope. This is a CRO, TX monitorscope with two-tone generator, and receiver panascope! **$TBA.**
SP-901 External speaker **$56.**
SP-901P. External phone patch/speaker. **$135.**
FTV-901 VHF/UHF/OSCAR. Transverter for 50, 144 and 430 MHZ. **$TBA.**
CW and AM Filters, $63 each. Elect. keyer unit **$48.** Memory **$172.** DC-DC unit **$86.** FM **$58.**

Whether you are looking for a first class singer/entertainer or first class communications equipment, you must be as discerning as we were. Pictured is popular Melbourne soprano, Margaret Smith of Mount Waverley with the top of the range from Yaesu

FT-101E TRANSCEIVER: 160-10 Mx, SSB, AM, CW, PA two x 6JS6C 260W PEP input SSB. 240V AC BUILT-IN RF SPEECH PROCESSOR. Solid state except for TX. PA and driver. IF noise blanker, FET Rx RF amplifier, clarifier, built-in speaker. Mic., English Language Inst. Book, connectors and Pwr. cable inc. **$889.**
FT-101E W/DC FACTORY INSTALLED. **$945.** (FT-101E's imported by B.E.S. now inc. a more effective, adjustable N.B.)
101E DC-DC CONVERTER KIT $60.
FV-101B EXT. VFO $169.
SP-101B EXT. SPEAKER 8ohm **$49.**
SP-101PB EXT. PHONE PATCH/SPKR $135.
YO-101 Monitorscope, inc built-in two-tone. **$399.**
YC-601B DIGITAL READOUT ADAPTOR for FT-101E, with built-in AC PS. Includes frequency counter to 30 MHz. **$316.**
M-101 MOBILE MOUNT for FT-101E **$38.**
CRYSTAL FILTERS for CW and AM. **$63 each.**
FL-2100B LINEAR AMPLIFIER: 80-10Mx, uses 2 x 572B triodes in G.G. twin fan cooled, styled to match FT-101E. Equally suitable for other rigs. **$585.**
L **FT-301 160-10mx.** Fully solid state Tcvr, built in RF Speech Processor, 200W PEP Input **$898.**
L **FT-301D DELUXE DIGITAL Tcvr.** Similar to FT-301, **$999.**
• *L* **FP-301 MATCHING POWER SUPPLY,** 20 Amp 12V suit all 301 Transceivers. **$195**
YO-301 MATCHING MONITORSCOPE for FT-301 Series. **$399.**
FC-301 ANTENNA COUPLER 500W, inc. SWR & Pwr meters, ant. switch and connectors. **$258.**
R-301 RELAY BOX for FT-301 to FL-2001B. **$23.**
FT-7 TRANSCEIVER, 80-10m, for novice and mobile. 20W all solid-state. **$585.**
FT-7B TRANSCEIVER, as FT-7 but with full coverage of 10M Band (28.5-29 installed), 100W peak input, and other additional features. **$685.**
FL-110 SOLID STATE LINEAR AMPLIFIER, 10-15W drive, 200W PEP input, 160-10mx **$259.**
I **FL-101 TRANSMITTER:** Solid state 160-10m, PA two 6JS6C, all facilities. Companion unit to FR-101 **$695.**
I **FL-101 SPEECH PROCESSOR:** For installation in FL-101 **$95.**
I **FR-101D RECEIVER:** All solid state, 23 bands incl. all amateur bands 160-10m plus 6 and 2m, FM, CW, etc., etc. **$1245.**
I **FR-101D DIGITAL:** Has all the options of the FR-101D as well as DIGITAL READOUT **$1455.**
(FR-101 requires 8 ohm speaker)
FRG-7 WADLEY LOOP RECEIVER: All solid state, 0.5-29.9 MHz in thirty 1MHz bands. Electronic band selection. **$389.**
BATTERY HOLDER FOR FRG-7, holds 8 size "D" cells for internal battery operation **$10.00.**
FRG-7000 WADLEY LOOP RECEIVER: Improved version of FRG-7, extended freq. coverage, digital readout, digital clock etc. **$895.**

FT-625 and **FT-225** VHF Transceivers. Feature all mode of operation — SSB/FM/CW/AM — with repeater offset capability, using advanced phase-locked loop circuitry. AC and DC operation. Similar styling to FT-901.
(FT-225, 144-148 MHz., FT-625, 50-54 MHz)
R model, analog dial. **$895.**
I **RD,** analog & digital **$995.**
I **RDM.** Analog, digital & memory. **$1175.**
I, Indent order. *L*, Limited stocks.

I **FTV-650B SIX METRE TRANSCEIVER:** Converts 28 MHz. SSB to VHF, and includes receiving converter. 50W PEP. Primarily designed for coupling with Yaesu transmitters **$290.**
I **FTV-250 TWO METRE TRANSVERTER:** Similar FTV-650B. 10W-15W output, but all solid state and built-in AC PS. **$348.**
L **FT-227R** 2mx, 10W FM Tcvr, 800 Ch, with Dig. Readout, memory, rev. etc. **$365.**
L **FT-227RA,** Similar FT-227R but with four memory channels and PLL scanner with control from microphone. **$399.**
L **CPU-2500R** 2M, 25W FM Transceiver with PLL synthesis in 5 KHz steps, controlled by a central processing unit. Four memory chans., with scanning.
CPU-2500R, with standard mic. with up/down scanner controls. **$545.**
CPU-2500R, with keyboard mic., allowing remote input of dial or memory chans., programming of repeater splits, scanner control, and tone pad. **$585.**
I **YC-500E 500MHz FREQ. COUNTER:** Accurate to .02ppm. **$656.**
I **YC-500S 500MHz FREQ. COUNTER:** Accurate to 1ppm. [illegible]
I **YC-500J 500MHz FREQ. COUNTER:** Accurate to 10ppm. [illegible]
YP-150 DUMMY LOAD/POWER METER: For use over the frequency range 1.8-200 MHz. Three power ranges, 0-6W, 0-30W, 0-150W with built-in cooling fan **$112**
FF-501DX 3-SECTION L.P. FILTER for TVI reduction. Includes two PL-259 co-ax plugs. **$39.**
F-101 FAN. $38.
YD-844 DESK MICROPHONE: Yaesu De Luxe PTT Dynamic type with stand, spring and lock PTT switches. PTT also actuated when lifted from deck. Dual imp. 600/50K. Inc. connector. **$49.**
YD-148 DESK MICROPHONE: Flexible Goose Neck type. 600/50K. Inc. connector **$49.**
HAND MICS. FOR YAESU, YD-846 etc. with connector. **$21.50**
YH-55 YAESU HEADPHONES: 8 ohm. **$19.00.**
SERVICE MAINTENANCE MANUALS: FT-101 **$27.** FT-221. **$19.**
RS SERIES HF GUTTER MOUNT MOBILE ANTENNAS: RS Base and Mast (doubles as ¼ wave on 2m), complete, inc. co-ax lead attached RSE-M2. **$29.90.** Coil and Tip Rods: RSL-3.5. **$22,** RSL-7 **$21,** RSL-14 **$20,** RSL-21 **$19,** RSL-28 **$19,** RSL-145 (5/8 2M) **$24.**

Special, $ Reduced! Limited stocks only.

STANDARD VHF and UHF TRANSCEIVERS

SR-C146A. 2m hand held 5 chan 2W transceiver, inc. carrying case and 3 chns.	$199.00
SR-C432A, 70cm hand held 6 chan 2W transceiver, inc. carrying case and 1 chn (435 MHz)	$225.00
STANDARD ACCESSORIES	
CMP08 Hand mic. for SR-C146A and SR-C432	$25.00
CAT08 Rubber antenna (helical) for SR-C146A	$10.00
Heavy Duty Carrying Case for hand held units	$16.50
AC Adapter and charger for hand held units	$35.00
Mobile Adapter for hand held units	$14.50
AC Charger only	$11.00
Ni-CAD Penlight Cells, type AA	$2.90

ANTENNA ACCESSORIES

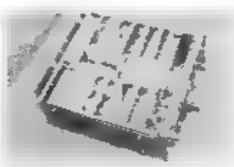
LA-1, Lightning Arrestor, for installation in standard 52 or 72 co-axial feedline, designed to Mil. specs.	$76.00
LA-2 smaller size co-ax arrestor	$4.95
BN-86 Hy-gain ferrite Balun, 2 kW, 1:1	$30.00
VS-BN Hidaka ferrite Balun 2 kW 1:1	$26.00
VS-BN4 Hidaka similar VS-BN, 300 ohms	$26.00
BA-1 Western ferrite Balun 2 kW 1.1, light weight	$22.00
HN31 Dummy Load Cantenna Kit 1 kW oil cooled (oil not included)	$45.00
FF-501DX Low Pass Filter, 3 Section, 1 kW	$39.00
LP-7 TVI Filter low power	$9.00
KW Electronics L.P. Filter 5 Section, 1 kW	$59.90
TV-42 Drake L.P. Filter, 3 Section, 300 W	$19.00
TV-476 Hy-Gain L.P. Filter, 150 W	$15.00
TV-75 Drake High-pass filter 50MHz UP	$15.00
Porcelain Egg insulators	50 cents

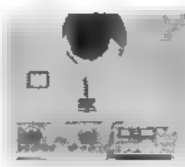
WIDE RANGE of Co-axial cable and connectors in stock.

Multi-band dipole traps centre insulator, 80-10m bands per pair, complete with insulator, KW Western	$38.00 $35.00
590G B & W co-ax. switch, 5 posn., rear entry	$39.90
TWS-120 2 position co-ax switch	$18.00
ASW-1, Western 5 position co-ax. switch, side entry	$33.00
RS-107 Transceiver tester	$68.00
RS-501 Ant. Impedance bridge, inc. 1 osc	$72.00
Extra Osc. for RS-501	$16.00

SCALAR MOBILE WHIPS

M-22T ¼ wave 2m whip top	$6.50
M-25 5/8 wave 2m whip top	$16.50
M-40T 4.5 dB Gain, 435 MHz	$19.80
M.B. Standard base	$4.70
M.B. UHF base	$5.80
MAGBASE inc. 12ft. of RG-58/AU	$49.00






SWR AND POWER METERS

SWR-40, REACE single meter type, combined SWR and FS meter, 50 ohms, inc FS pick-up whip, size 5" x 2" x 2¼". 3-150 MHz, UHF connectors **$19.00**

FSI-5, REACE — dual meters, 50 ohms. Simultaneous reading of forward and reflected power, 5" x 2" x 2¼" 3-150 MHz, UHF connectors. Very sensitive, ideal low power use. **$29.00**

RS-101 Small size SWR meter, with brackets to mount under dash for mobile **$7.50**

ME-11X, ASAHI dual meter **$22.00**

SWR-200 Osker-Block large dual meters, switched 50-75 ohms, with calibration chart for direct power readings to 2 kW in three ranges. A very elegant instrument. 75/8" x 2¾" x 3¾" **$75.00**

FS-600A Hansen Peak Reading Wattmeter SWR meter 20, 200, 500 and 1000 watts 230 VAC operation. 3.5-30 MHz, **$78.00**

ANTENNA COUPLERS

HC-75 Tokyo Hy-power labs. Trans-match 75w PEP **$77.00**
HC-250 Tokyo Hy-power labs. 250w **$95.00**
HC-500A Tokyo Hy-power labs. inc. 160m x 500w PEP **$159.00**
HC-2500 Tokyo Hy-power. Trans-match 2.5 kw PEP Limited stocks only at old price **$256.00**

VHF ANTENNAS

VS-2GH 2m 5/8 wave ground-plane **$49.00**
VS-6D 4-element 6m Beam **$69.00**
VS-6GH 6 metre 5/8 wave G.P. **$59.00**
VS-07GH 430 MHz 5/8 G.P. **$45.00**
ARX-450, 435 MHz three half wave 6dB Ringo **$45.00**
432-15H 15-element 430-440 MHz Beam **$65.00**
VS-2GL 7 element 2m Beam **$48.00**
VS-2IL 9 element 2m Beam **$66.00**

ROTATORS

Emotator:
103LBX Medium duty, disc brake **$179.00**
502CXX Heavy duty, disc brake **$259.00**
1102MXX Heavy duty, mechanical brake **$389.00**
1211 Mast clamp for 103LBX **$18.00**
1213 Mast clamp for 502CXX **$29.50**
300 Mast Stay bearing **$32.00**
301 Tower top bearing **$32.00**
High quality tough PVE insulated cable especially for external use with rotators
VCTF-7, 7 core cable (for 1100 series) **$1.40** per m
VCTF-6, 6 core (for 103 & 502) **$1.25** per m
1103MXX Extra Heavy Duty, high turning torque **$410.00**
1215 Mast clamp for 1102/3 **$45.00**
Flexible coupler 451 (for 1102/3 & 502) **$32.00**
Flexible coupler 450 (for 103) **$16.00**

VHF MOBILE ANTENNAS

AS-2HRF 5/8-wave cowl mount type **$39.00**
VS-07MG 70cm Mag Mount ¼ wave **$19.00**
HOPE-2R 2 metre gutter mounted helical, only 22 cms long, incl. co-ax connector **$26.00**
VS-TOWN 2 metre flexible helical on PL-259 **$19.50**
VS-MM, magnet mount for VS-TOWN, incl. co-ax **$20.00**
HU-2HR Hidaka 2 metre 5/8 wave 6m ¼ wave gutter mount incl. co-ax and connector **$39.00**

DENSO 430 anti-corrosive compound for jointing antenna and beam elements (as used by electrical authorities). Per tube **$2.90.**

ANTENNAS AND ANTENNA ACCESSORIES

HF MONOBANDERS

VS-20CL 3 element W.S. 20m beam, **inc. Balun** **$199.00**
VS-11CM 3 element 10/11m **inc. Balun** **$95.00**
VS-15CM, 3 element 15m. **inc. Balun** **$128.00**

HF DUO BAND

VS-22 Hidaka 3 element 15-11/10m, **inc. Balun** **$179.00**

HF TRIBAND BEAMS

TH6DXX, 6-element trap Beam **$339.00**
TH3Jr, 3-element trap Beam **$195.00**
HY-QUAD 2-element Quad Beam **$237.00**
VS-33 Hidaka (Equiv TH3Mk3) **inc. Balun** **$265.00**
DX-33 Western (UK) similar TA-33 **$240.00**

HF MULTIBAND TRAP DIPOLE

TD-1 Western (UK), 10 THRU 80m Approx 110 ft. (34m), ready made with traps, insulators and HD copper wire. Use co-ax or low imp. twin line feeder (not supplied) **$68.00**

FITTINGS: (Suit all makes with 3/8" x 24 thread)
BPR, bumper mount **$22.00**
BDYF, heavy duty adjustable body mount **$24.00**
VS-BM Ball Mount & Medium Duty Spring **$20.00**
VS-BPM Bumper Mount **$18.00**

VS-LBM Ballmount & H.D. Spring **$25.00**
H.D. Spring **$15.00**
AS-GM Guttermount **$15.00**
VS-NGM Guttermount inc. M ring and Co-ax. **$24.00**

HF VERTICALS

VS41/80KR Hidaka 10m thru 80m, **$129.00**
VS-RG Radial Kit for VS-41/80 KR **$35.00**
VS-TR, loaded rod radial kit, 10-80m **$69.00**
18V 10m thru 80m base loaded, exc. portable ant. **$45.00**
Million V1 10/11 metre ½ wave 3.75 dB Ringo **$29.90**

HF MOBILE WHIPS AND FITTINGS

AS-303 HF Mobile antenna set, centre loaded, incl. heavy duty ball mount and spring **$139.00**
AS-NK matching SS Bumper Mount for AS-303 **$20.00**

OTHER ACCESSORIES

EKM-1A Audio Morse CP Osc with speaker, one transistor, and tone control, requires one UM3 cell, in metal case 3-5/8" x 2½" x 1-1/8" **$16.90**
TC-701 Morse Practice Osc. with built-in key and spkr. Inc battery and auxiliary earpiece. Copy of morse code on case. Two can be wired together to form a practice communication set **$19.50**

MORSE KEYS, by KATSUMI & HI-MOUND

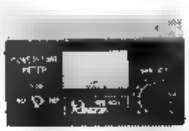
EK-150S Single Paddle Electronic Keyer **$149.00**
EK-150D Double paddle electronic keyer **$149.00**
MK-1024 Programmable Keyer, 1024 bit memory **$265.00**

HI-MOUND
HK-808 De luxe heavy duty morse key. Heavy base. A beautifully constructed and finished unit. Fitted with a dust cover, standard knob and knob plate. Ball bearing shaft. Precise, firm adjustments. This is a really superb "professional" key and a delight to use. Worth every cent of **$85.00**
HK-70 Heavy duty, lower cost version of 808 **$47.00**

HK-706 Operators key **$25.00**
HK-707 Standard key **$19.50**
HK-708 Economy, with flat knob **$17.00**
HK-707, with dust cover and standard knob On standard base **$19.50**
MK-701 Side Swiper key to actuate an Electronic keyer **$39.00**
BK-100 (BUG) Semi-automatic bug key, fully adjustable **$49.00**

VALVES for Yaesu equipment, 572 B **$59.00,** 6KD6 **$12.50,** 6JS6 **$11.00,** 6JM6 **$12.00,** S2001 **$13.50,** 12GB7 **$10.00,** 7360 **$22.00,** 6GK6 **$8.50.** 6146B **$16.00,** 12BB14 **$10.50,**

bail



QTR-24

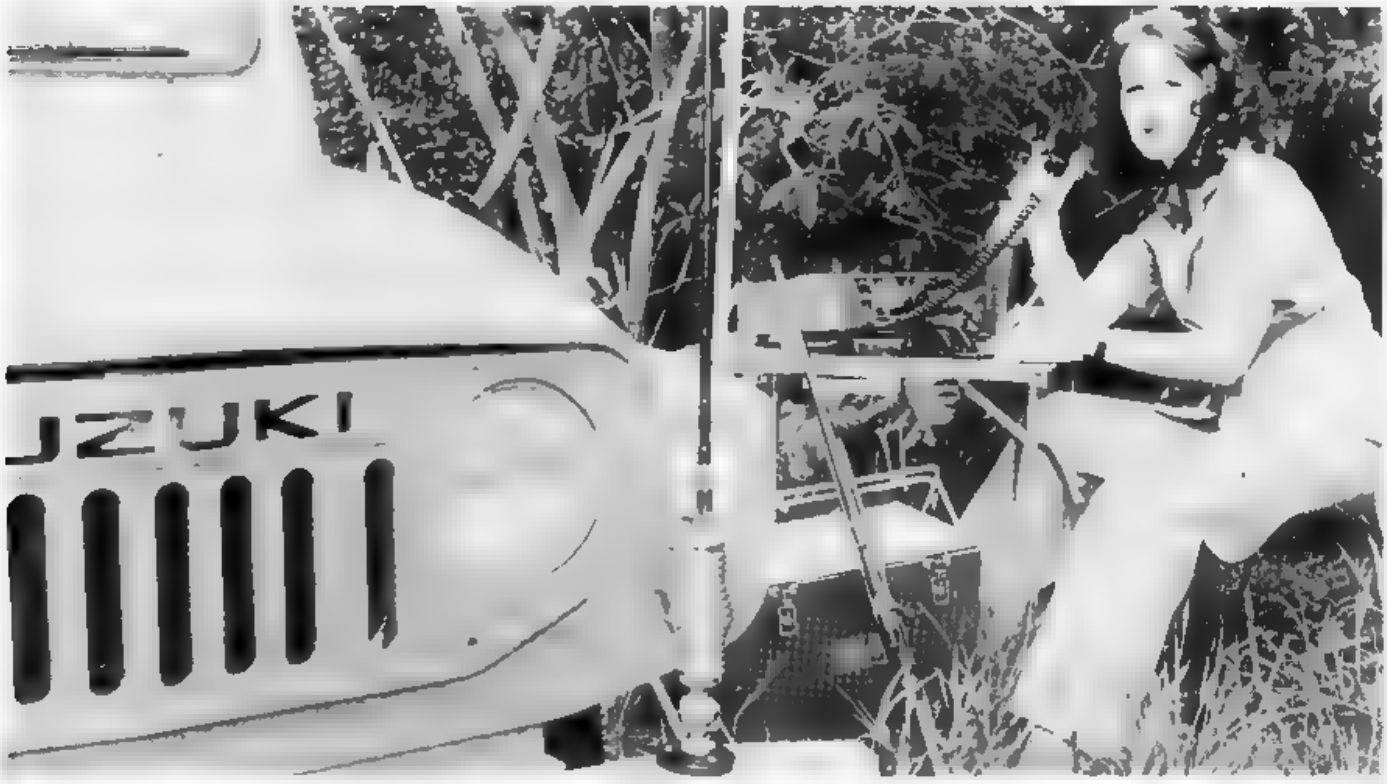
24 hour World Clock **$35**

QTR-24

Now an addition to YAESU'S range of measuring instruments . . .

Yaesu has now made an addition to their already well known range of measuring instruments. It is the QTR-24, a 24 hour World Clock. With a glance the time in any principal city or time-zone can be simultaneously co-ordinated with local time on a 24 Hour basis. The QTR-24 is powered by a 1.5V dry cell, which has a normal life of approximately one year. No amateur or SWL station could be complete without one

Also shown in the photograph is the YO-101 monitorscope, FT 101E transceiver, YC-601B digital readout adapter and YP-150 dummy load-power meter



*Power Supply Price applies only with purchase of matching transceiver

As the authorised Yaesu agent and factory representative for Australia since 1963, we provide after-sales services, spares availability, and 90-day warranty except power valves and semi-conductors.

Quote type of set, serial number, date of purchase, and inv. no. when ordering spares. All prices include sales tax. Freight is extra. Prices and specifications subject to change without notice. Allow 50c per $100 for insurance. Availability depends on stock position at time of ordering. Send 50c postage for latest Yaesu catalogue

bail ELECTRONIC SERVICES

FRED BAIL VK3JV5
JIM BAIL VK3ABA

60 Shannon St., Box Hill North, Vic., 3129.
Ph. (03) 89 2213

Yaesu Agents in Australia since 1963

Amateur equipment from B.E.S. also sold by —

W.A.	Radio Communication Services, H. R. PRIDE, 26 Lockhart St., Como, 6152	Ph. 450 4379
	WILLIS TRADING CO., 428 Murray Street, Perth 6000	Ph. 21 7609
S.A.	FARMERS RADIO PTY. LTD., 20 Stanley St., Plympton 5038	Ph. 293 2155
TAS.	G. T. ELECTRONICS, 131 Westbury Rd., Sth. Launceston 7200	Ph. 44 4773
	[illegible], Hobart 7000	Ph. 34 6812
	[illegible], 61 Wentworth St., Launceston 7250	Ph. 44 5000
N.S.W.	Aviation Teeling, STEPHEN KUHL, 184 Robey St., Mascot 2020	Ph. 667 1650
	Amateur & Novice Comm. Supplies, W. E. BRODIE, 23 Dalray St., Seven Hills 2147	Ph. 624 2691
	DIGITRONICS, 186 Parry St., Newcastle West 2302	Ph. 69 2040
	RIVERCOM, Sid Ward, 9 Copland St., Wagga Wagga 2650	Ph. 21 2125
QLD.	H. C. BARLOW, 82 Charles St., Aitkenvale, Townsville 4814	Ph. 79 6179
	MITCHELL RADIO CO., 59 Albion Rd., Albion 4010	Ph. 57 6830
A.C.T.	QUICKTRONIC, Jim Bland, Shop 11, Alinga Crt., Phillip 2606	Ph. 81 2824, 82 2864

GROUND WIRES — HOW EFFECTIVE

S. R. Gregory VK3OT
P.O. Box 414, Hamilton 3300

Here is a plot of the effect of ground wires on signal strength, as used by station engineers planning new installations.

I am sure all the 160 metre buffs and those contemplating any vertical antenna will be interested in the effects of adding ground radial systems. The half-wave vertical shows a power gain of 1.5 dB over the quarter-wave, while with 3.1 dB over the quarter-wave a five-eighth antenna would be the most desirable for any DX work. Conversely, the shorter an antenna the more rapid is the drop off in field strength. The graph is based on a power of 2000 watts. The theoretical field is based on sinusoidal current distribution in the antenna.

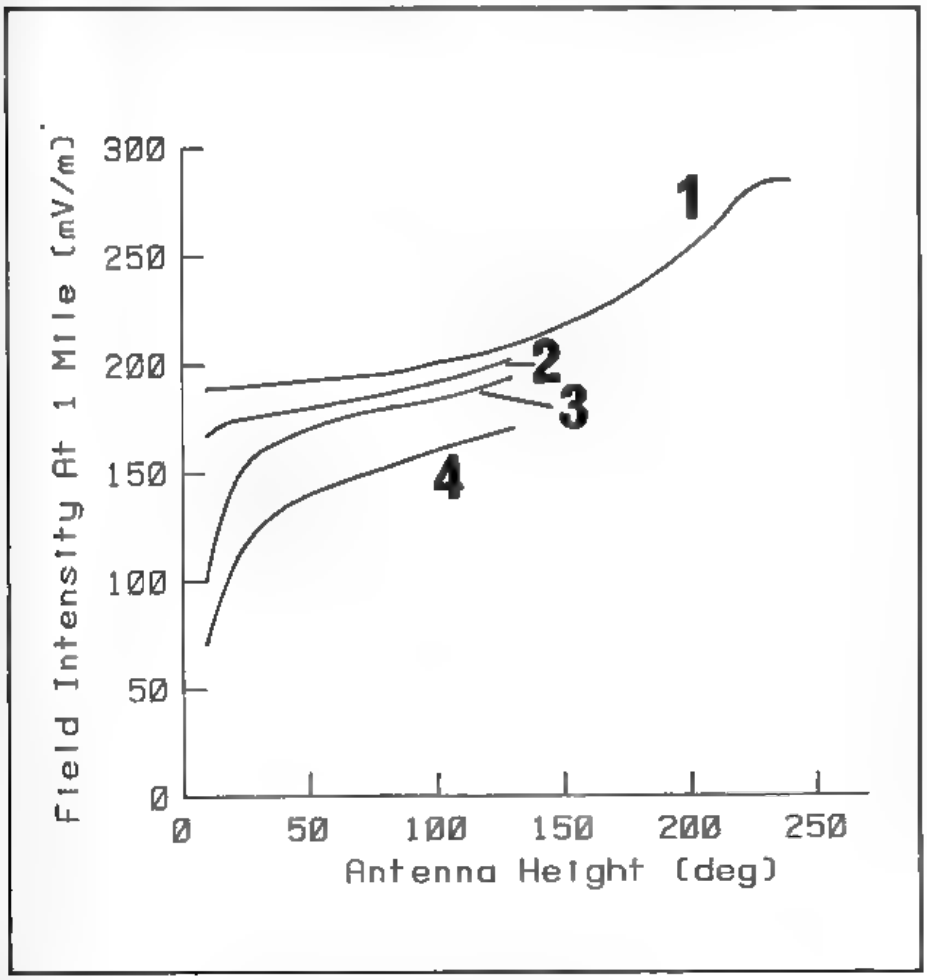
(The test frequency would be roughly 1 MHz.—Ed.)

The author would be glad to provide copies for the price of an s.a.s.e. to above. ■

FIG. 1: Effect of Ground Wires on Field Strength.

(1) Theoretical Field Intensity over Perfect Earth. (2) Measured Field Intensity 113 Radials 150° Long. (3) Measured Field Intensity 113 Radials 100° Long. (4) Measured Field Intensity 113 Radials 50° Long.

Note increased necessity for long ground wires when antenna is shorter than 30 degrees.



MURPHY'S LAW

Any one who is trying to design anything or build anything should be familiar with Murphy's Law. The basic law is very simple. It states, "If anything can possibly go wrong it will". It can be also stated in a mathematical form, $1 + 1 \S = 2$. The symbol § means "hardly ever". Here are some of the detailed applications of the law.

1. Any completed and checked circuit or drawing will be neither completed nor checked.

2. If a project requires "n" components, there will be "n-1" components available. The one missing will be the most important one with no possible substitute.

3. Interchangeable parts won't.

4. Circuits and handbooks will be lost or unavailable.

5. Any wire cut to the right length will be too short.

6. The probability of an error is directly proportional to the amount of trouble it will cause.

7. A dropped tool will land where it can do the most damage. (This is also known as the Law of Selective Gravitation.)

8. Components which must not and cannot be assembled wrongly will be.

9. A sensitive DC meter will always be overloaded and wired in backwards.

10. Any expensive transistor protected by a fast acting fuse will protect the fuse by blowing first.

11. The more tidily wired a circuit is the less likely it is to work.

12. The most delicate component will always drop off the bench.

13. A self starting oscillator won't.

14. Original circuits will be mangled by the copying machine.

15. The resistance which has a critical value is the one which will be missing.

16. Crystal locked oscillators never are.

17. Intermittent faults only reappear after the unit has been completely reassembled.

18. There will always be some bits left over when a unit is reassembled.

—Courtesy of Roy Hartkopf in "Zero Beat". ■

WARC 79 — NEXT YEAR

PORTABLE W4

Leo F. Powning VK5ALP/W4
1821 South Lakeshore Drive,
Chapel Hill, North Carolina, U.S.A. 27514

"W4RHE, this is VK5ALP. Do you copy, old man?" There was silence for a few seconds and I thought Chuck might have resented my interrupting his 40 metre DX QSO with another station.

Then he came back, "VK5ALP this is W4RHE. Holy smoke, I just picked myself up off the floor, you nearly blew my ears off! You've got the biggest signal I've ever heard from VK, how much power are you running?" I laughed so much at Chuck's response, it was my turn to pick myself up off the floor and after apologising for not adding the W4 suffix to my call sign to let Chuck know I was in North Carolina, only 400 miles north of his Florida QTH. We arrived here in June 1977 on a two year assignment with my computer company employer and you may be interested in a "down under's" view of the ham radio scene in the U.S.

First, the good news — 300,000 licensed amateur stations here. Now the bad news — whenever I try to operate on HF they all seem to be on. You work it out, 525 kHz on phone bandwidth on the combined 80, 40, 20 metre bands at 3 kHz per channel gives 175 phone channels at best. NSW add an amateur population 50 times larger than VK and you know why that W you were working last night had to end the QSO because of QRM. On many occasions I've found it impossible to get on HF here without coming up over another station. Linears add to the problem, many stations overdrive and the resultant splatter takes up more bandwidth. I run a Heath SB200 linear but only to compete with the guy down the street who has one, plus it helps me work back to VK through the QRM. Many of the guys here would be happy to see linears barred and legal power reduced. The high power allowed causes more problems than it cures.

From your end there are a few big signals that ride in over the noise, hail, rain or shine, but the prize (allow me to be chauvinistic, fellers) has to go to "Portly Bob" VK5PB with his 3 element 40 metre beam at around 70 or 80 feet. I copy Bob at about the same strength as my wife copies Radio Australia on her receiver!

Repeater enthusiasts would be happy here, we have 100 in North Carolina, which is roughly 100 x 300 miles. Any licensed amateur is allowed to set up a repeater; fortunately the owners co-operate and use frequencies allocated to them by an amateur co-ordinating committee. Soon after arriving here I traded my IC22A on a synthesized rig — had to, I'd have gone broke buying xtals just trying to cover the repeaters in this State.

Two metre mobile is a tremendous travelling aid; I rely heavily on it when trying to navigate my way through the big cities, particularly on the crowded city freeways where all the traffic seems to be moving like the world's going to end in two minutes and everyone wants to get off. A word of caution. In the southern States we call "Break" when we want to get into a repeater channel QSO; DON'T DO IT IN NEW YORK. I did so and the channel suddenly went quiet. I was wondering where everyone had suddenly disappeared to without a word. Then the channel slowly came to life again and I was politely told that Break is only called in an emergency in New York. Guess they have need of that facility.

Speaking of repeaters, amateurs have a tremendous communications bonus in the U.S. with their automatic phone patch facility. As shown in the photograph, my

Touchtone Pad on rear of Microphone gives access to Repeater "Auto-Patch" and Public Telephone Network. Tone IC in Mic. gets power from rig via simple modification to Mic. Socket.

Because of the service they provide to the community, many States issue Special Amateur Radio Car Licenced Plates

microphone is fitted with a push-button actuated tone generator which generates discrete tones within the audio range for each button pressed, the tones used are internationally known as Q23 series which Telecom are also using in Touchphone installations in VK.

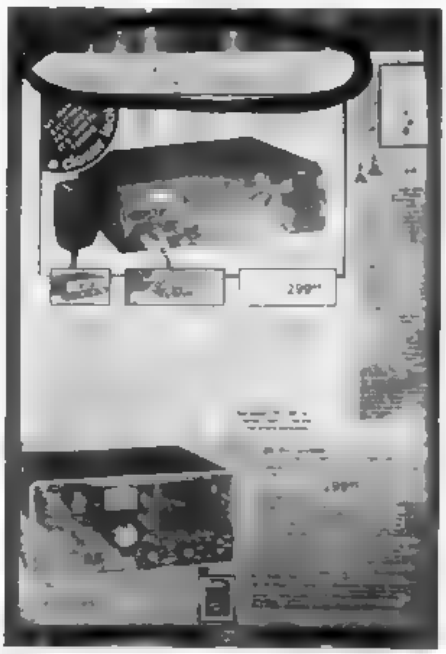
To use the facility I call the repeater, viz , "WR4AGC this is VK5ALP/W4 accessing autopatch". FCC regulations require this procedure so they can audit traffic (all repeater traffic is recorded and held by the repeater owner for a set period), then, keeping the PTT switch down I press the * button. The repeater receiver recognises this tone as a command to connect to the telephone system and after releasing my PTT switch I hear the "brrr . . ." or "off-hook" tone in my receiver; I then dial my number and, hey presto, I have a mobile phone facility. Takes a few calls to get used to the half duplex nature of the phone conversation but no real problem. It's a real aid in reporting accidents or other emergency situations direct to police, ambulance, etc. Pressing the # button disconnects the repeater from the phone line. Police here actively seek our assistance in reporting accidents, suspicious characters, etc. A couple of months ago, one of our club members was driving past a bank when two guys ran out and drove off at high speed. He put two and two together and called police on the phone patch, giving their licence plate number. A few minutes later two bank robbers were sitting in the back of a police car wondering what went wrong! U.S. amateurs have been of such assistance in civil emergencies that many States even issue special amateur radio car registration plates. Thought I might have trouble getting one with a VK call, but no problem, as shown in the photograph.

Our local amateur radio club is very active and successful. Around 70 per cent of the members attend each monthly meeting and I think this is due to three major factors: (1) a family atmosphere, (2) the meeting itself is short, sharp and to the point without "waffling" or debate about nothing, (3) interesting and competent invited speakers. The meetings are held in a local fast service, low charge restaurant, which sets an area aside for our use. We and our wives start drifting in around 6.30 for dinner and the meeting is held in the same area at 7.15, with everyone still at their dinner tables. The business meeting is conducted fairly but tightly and always concludes by 7.45. Then we have an invited speaker.

The speakers are selected such that we have a mixture of technical and non-technical presentations. Speakers in my time here have ranged from the local school system superintendnet, who was formerly in the Secret Service and was one of President Kennedy's bodyguards. He told us of his experiences with JFK (fortunately for his peace of mind, he was not on duty in Dallas when Kennedy was assassinated). Another was a qualified tax agent, who advised us of how to pay the least income tax whilst staying within the law. Last month's speaker was a scientist from a local research institute, who made a presentation on commercial communications satellites. Interspersed amongst these were slow-scan, micro-processor and printed circuit board construction presentations (there was a good roll-up the night I gave a pitch on amateur radio in VK). The speakers finish by 8.45 at the latest, so you can see we pack a lot in the two hours. I think you can also see why the meetings are so popular.

I was involved with YRCS in Australia so make my contribution here by teaching Novice classes. Novice theory standard is well below that of VK (at least of the first few VK Novice exams which I feel were ridiculously high) and about 80 per cent of our students pass the licence exam. We conduct the CW test ourselves and supervise the theory exam which is sent to us by the FCC.

Up to 60 per cent of the Novice students are ex or current CBers; you only have to listen to the CB band for a few minutes to understand why they have become disenchanted with CB. Beats me how any CB sets are sold here; I've listened a few times and it's been complete chaos with stations all over one another; I understand it's going the same way down there. A group of CBers here decided to solve their problems by forming an association called "HF International". This body issued call signs and allocated frequencies OUTSIDE the CB band for their members! Needless to say, the Federal Communications Commission moved in very smartly, confiscated equipment and fined members.



Hope you can read this invitation by the world's largest mail order house. You certainly won't read the fine print advising that you will need also an Amateur Licence.

Take a look at the advertisement on this page which one of the largest retailers in the U.S. is running in their mail order catalogue. Notice the resemblance to the early days of CB sales in Australia. Only in the fine print is the prospect told he will need a licence to operate this 2 metre gear. I wonder if we've got another batch of pirates coming up; the big retailers don't go into a market unless they can make big sales. **If we don't succeed in containing illegal 2 metre operation here, you can be it will spread like a scourge to VK;** should the WIA be moving now to seek legislation preventing sales of 2 metre gear to unlicensed buyers while there is still time? **(The WIA has already sought such legislation for ALL amateur transmitting equipment—Ed.)**

If you are planning a trip to North America, your "full call" in Australia will qualify you for Extra Class privileges here. (But only for those with 14 w.p.m.—Ed.) This is a good deal since Extra Class licensees have additional space reserved for their use on the bands (to gain the Extra Class licence U.S. amateurs have to pass a code test at 20 w.p.m.). To apply for permission to operate you'd need to write to the FCC here for their form 610A. Complete the form and send it to them no later than three months before arriving in the U.S. or you might be carrying a useless piece of iron around with you during your visit. I have operated during business trips to Canada; reciprocal licensing is much faster there; I just walked into the Department of Communications office with my VK Certificate of Proficiency and Station Licence and came out five minutes later with approval to operate. Only catch was that I had to leave my 2 metre rig at the Toronto Airport customs counter until I could produce a D of C approval to operate. The trip to and from the Department of Communication cost me a $25 cab fare so maybe you should also line up a reciprocal licence with Canada ahead of your visit just in case you meet the same customs officer I did, mutter mutter.

If you make a trip over here you'll find the Australian/American bond as strong as ever and you will be made welcome just as we have, so seven Aussies in the South ask you to return Australian hospitality to any visiting U.S. amateurs. 73s and our QTH is as shown on this article if you are passing through North Carolina. ■

LOVE'S LABOR LOST

Alan Shawsmith VK4SS
35 Whynot Street, West End 4101

Fred's life was all dragons and disaster: his marriage was a mess and his job a salt mine. He yearned for two things — escape from Bessie, the YF and to do a Dx-pedition. The former would bring heavenly peace from the griping yakkiti-yak that started up every time he went on air: the latter would raise him from the ranks of the also-rans, to someone of "status" in the Dx world. The poet once said "Give me honour for an hour rather than a lifetime of non-entity" — and Fred, in his depressed and harrassed state, believed it.

Somewhere along the marital way he had lost the battle of the sexes. It was *he* who'd become the object and chattel. No longer did he dare to have a few beers with the boys, or a nibble on the nags at the week-end. He did, however, manage to sneak into the Radio Club meets on the nights he worked back. He gave the boys the same old spiel — "He was planning a DXpedition". After he'd gone, there were jokes all around: any DXpedition would be better off without Fred—he was a disaster area in himself, the world's most fumbling op. Anyway, they knew he'd never make it — not with Bessie around.

But fate fiddles in the fortunes of us all and one day it dealt Fred a blow that gave him a chance to change his dream into a practical scheme. The blow was in the form of a knock on the noggin by a length of lumber in the yard where he laboured. As he came to, a blinding flash of inspiration shot through his mind. Like someone who had suddenly seen a chance to fake death, yet live, Fred saw a way to escape his OG and do a DXpedition.

"I'm feelin' worse," he told the foreman, after he'd been lying moaning in the rest room for two hours. Actually he was only foxing: his injuries were superficial but his mind was alert and in a whirl with a sudden escape plan. The boss came in and told him they'd ring an ambulance to take him to the hospital.

"No," said Fred, "but, if it's OK with you, I'll take my holidays and sick pay now."

"But you're a month early and what'll I do for labour?"

"Yeah, but I've been overworked on overtime!" Fred was beginning to feel desperate: to put his plan into action, he'd need a full pay packet or ND. The boss toted up his sick, holiday and overtime pay and farewelled him with a slap on the back that was almost a push through the door. He realised that he'd been given the "dry wipe" and they didn't care if he returned or not.

He'd decided to shoot through to Hong Kong, so first he must check the delay on the issue of reciprocal licences. There were more exotic spots nearer home, CR8 or YJ, etc., but Hong Kong it had to be, for several reasons. It must be some place where he could buy a rig right off the rack; not taking his own along, Bessie would smell more than a rat.

To his surprise, the reciprocal licence was a breeze, brought about mainly by the fact that the bloke on the other side of the counter was a Ham who'd been to VS6 land and said he'd see the ticket through personally, thus proving the old adage that it's who you know that matters, rather than what.

Now for the last snag: to rid himself of the albatross around his neck — the OG. On the way home he bought from the first chemist shop a long white bandage, slipped into a public toilet and wrapped the top of his head in it, right down to his ears. Bessie was out. This gave him time to dig out an old doctor's certificate; he just might need it as a bluff.

Bessie found her OB lying on the sun-room sofa with his head swathed in cloth. Her greeting was one of suspicion rather than of concern. "What's up?"

"Got fumbered at work. The ambulance took me to the nearest Doc and then brought me home," he lied, "I've got two weeks sick leave but if I don't feel fit, I can make it three."

Anger rose in his OG's face. "I see, we starve while you sit for three weeks in there, at that — at that." She flung an arm in the direction of the shack.

"No," said Fred, trying to play it cool, "the Doc says I'm run down, so I'm going up to Frank's place." This was his brother and the only man Bessie would not face, so Fred felt safe.

Anger turned instantly to hate. Her gaze fixed intently on the OM's bandaged head. She smelled a rat, "Take it off!" she commanded. Uri Geller's stare bends spoons but Bessie's is more potent: it lays the mind bare, right to the grey matter. For the second time in one day, Fred grew desperate. Under the OG's penetrating gaze, the bandage on his head felt as if it was about to unwind itself. He played his last card — the bluff. Reaching into his pocket he produced his certificate. "Here," he said, "check this with the GP and see if I'm badly hurt or for Gawd's sake belt up!"

After a moment's hesitation, Bessie turned on her heel without a further word. He was free but could hardly believe it. Through the barrier and loose at last: it just wouldn't sink in. Like some Indian swami, he averted his swathed head and raised his arms in silent but ecstatic gratitude at the benevolence of the gods.

Early next morning, before sneakily boarding the plane for "The Pearl of the Orient", Fred fell to temptation: he put a call through to one of his Club mates. "Tell the boys I'll be QRV — 80 through 10 from VS6 — for the next three weeks . . . Yeah, that's right, VS6." He just had to brag a little, but as is so often the case, it was to be his undoing.

The fact that Fred VK2 had got loose from his bag of strife, the YF, was news — and before the morning was out, most of the local Hams and their YFs knew of the happening — and before the day was out, Bessie had picked up the gossip in the village market-place. With a frightful fuming fury, she knew her whelp of an OM had done a double cross.

At the same time as Bessie was getting into action in Down Under, Fred was serenely absorbing the new exotic sounds and smells of Hong Kong. His 'digs", arranged for him by the Ham at the R.I Office in Sydney, Australia, turned out to be a small but neat unit, on the top floor of a high-rise apartment block on Victoria Peak. The following morning Fred stood on the pocket-sized patio and gazed down and around and rubbed his hands in sweet anticipation. He was so high, that looking eastwards, he felt he must surely see the States. He fingered the iron balustrade — perfect, just right to mount an all-band vertical. Already the music of the bedlam of the pile-up was in his ears: his dream of so long was about to be realised. Three weeks of it — the thought made him feel just a little giddy with anticipation.

There was a knock on the door and the Chinese janitor nodded his way into the room "Eve'thing OK, Mister Fred?"

"Oh yeah, sure — just great."

"You be busy man next few weeks?"

"You can say that again, Mac, I'll be a 'stayput' tenant!"

"Then maybe you like a little extra room service. Cook, make bed, clean up, eh?"

"Well I ———"

"OK, you talk with Yo Yee." He gave a little clicking sound and retired and there materialized in his place the sweetest little oriental bird Fred had ever set eyes on. She stood before him, all of 5 ft. nothing, as perfectly formed as the finest albabaster sculpture. a study in cream, black and red.

"I come at five, fix your dinner, supper, clean up, fix clothes," she paused and her gaze shifted to the bed The tiny nostrils d lated for an instant "and then I go early — early, 5 a.m., because I work downtown in daytime. OK, eh?"

"Er — I, er, yes. In the morning — Oh year, sure baby!" When the proposition took hold, there was a sudden tingling. He could hardly believe his senses.

She was gone, leaving only a rich, scented fragrance. It was all so sudden. Fred wondered if she really had been standing there before him. Back on the patio, he gazed down on the Suzy Wong district and smiled. "Why do I need it: I got it all up here — well almost." The added anticipation made him giddier than ever.

Now that the janitor had so blithely put an oriental dish on his account, so to speak, he waited for him to re-appear, to tidy up the details. No one appeared. He was finally told it was the gentleman's day off and he never returned till late at night, so Fred took himself downtown and shopped around till he found a natty 5-band QRP Xceiver, complete with vertical. He nearly didn't buy it. If he went over big w.th Yo Yee, he might need the cash; but he made the deal, returned to the apartment and set it up, ready to go. He switched on and spun across the bands and chuck ed with glee — DX was pouring in, from all over. He could hardly wait: tomorrow he expected a GPO clearance to transmit. Turning it off, he sat on the bed and rubbed his hands with pleasure. He couldn't decide which, or who enticed him the most — the rig or Yo Yee — DX or sex. Maybe she could cook too!

Right on 5 p.m. there was a knock on the door. Fred smoothed his hair and purred in his most let's get together voice, "Come on In, Honey." It was swung wide — and in walked his Honey of ten bitching years — Bessie! Fred's jaw hit his chest only to rebound back and his teeth chattered like a relay gone berserk. "Bess — s-s-s," was all he coud muster.

"Yes," said his OG, surveying his pad, "so, this is Franks place. My, he has come on: does he own it — and who fixed your head? Some Hong Kong miracle quack!"

At that very moment, Yo Yee hove into view at that end of the corridor. Fred leapt for the doorway, making strange jerky waving motions with his arms. Yo Yee hesitated, just for a moment, before sizing up the situation and then continued on along the hall, past the unit and out of his life, before she ever had a chance to get into it.

"Who was that?" asked the OG, appearing from the balcony.

"Dunno," said her better half, "just one of the tenants, I suppose." He tottered to the nearest chair, feeling faint.

Bessie began to sniff the air. "Scent," she said, "a woman's?"

"It's incense," said Fred desperately. "They all burn it round here: or, it's my after shave lotion."

Her roving eye settled on the new QRPer. "Did Frank provide that, too?" Then, with a note of final triumph, she added, "I'll bet you're wondering how I found you!"

"No," lied Fred, "but you should join the CIA. They want Marta Haris real bad." He braced himself for what was to come — a "bash" that would go on late into the night.

It was 5 a.m. in The Pearl of the Orient. Fred hadn't slept a wink. Downtown, the early morning noises heralded a new day but the apartment was still all quiet. Without warning there was a firm knock on the door, followed by the janitor's sing song voice calling, "Missee Yo Yee, Missee Yo Yee, time you get out of bed. Time for work." Late home the previous night, he didn't know the situation and had goofed. Fred lay petrified: had Bessie heard? Suddenly, there was a roar from alongside him and the OG leapt from the bed. "You ——, so that's who that little love dove was who fluttered past here last night. Coming in to nest, was she? Incense, after shave, huh! Is this more of Frank's service?" With a single sweep of a sturdy arm she stripped the bedclothes off Fred. "Get up, you sneaky Don Juan — you crummy Casanova. We're taking the first plane back home." Bessie felt she'd been one-upped twice in 24 hours by her OM — and that was unthinkable. Fred opened his mouth to argue but thought the better of it and lay silent. Half his dream had already flipped into a nightmare but the rig was all set to go. he was still determined to see out the full vacation, even if Bessie screamed in his ear for the whole time.

As if sensing her OM's resistance, Bessie's eyes settled again on the small QRPer, up in the corner With an enraged snatch she ripped it clear of its coax., flung wide the door and hurled it down the nearby trash chute in the hallway. From below came a splintering crash, as it and the last vestige of Joe's sweet dream disintegrated forever, without so much as a single CQ from VS6.

That all happened six months ago and Fred, a VK2, has never been on air since. When asked, Bessie gives a strained smile and says, "Oh, he's up at Frank's place, working ——." But his Club mates smirk and know better Rumour has it that on returning to Down Under, he lost his glue, came unstuck, opted out and fled to the mountains to a secret hippie commune — and each night, when the raving voice of his exOG comes up to haunt and taunt him, he blows his mind on "pot". ■

TRY THIS

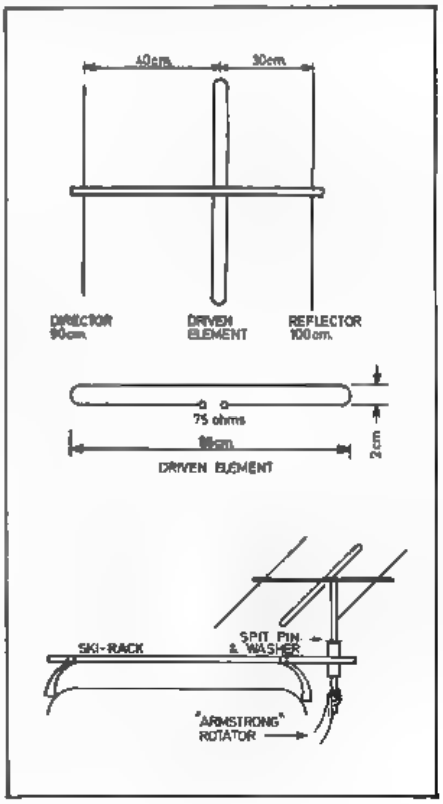
WITH THE TECHNICAL EDITORS

A 3-ELEMENT 146 MHz "MOBILE" BEAM

The following describes a simple beam which would be suitable for use in hidden transmitter events. It has reasonable front-to-back ratio and with the dimensions given the impedance at the centre of the folded dipole is about 70 ohms. A 1 : 1 balun should be used at the antenna feed point if coax. is used, but it does not seem to be very important. The boom could be made from aluminium tubing or dowelling and the elements could be made from aluminium wire. However construction details are left to the constructor.

Mounting the beam on the car becomes the next problem. Ski-bars appear to be about the simplest answer. A piece of tube welded at right angles on the end of the bar will serve as the bearing and support for the mast of the beam. A split pin and washer should prevent the mast sliding through. Leave enough protruding to allow the "Armstrong" rotator to get a good grip. Don't forget you will still want to get the door open

From "Tuned-In" Nov. 1977. ■



HOW TO GET THE STUFF INTO THE HOUSE

Unless your home operates on the kind of budget that permits sable coat Christmas presents for the XYL, swimming pools for the kids, your own ski chalet, and casual week-end jetting to Acapulco or Majorca, chances are you are up against a problem that has faced nearly every ham since Marconi; How to get the stuff into the house unseen . . . or, alternatively, how do you avoid telling her how much it cost?

Over a period of some years of supporting several hobbies and during which aquisitions of new and used cameras, lenses, fly rods, table saws, shotguns, sports cars, etc., to say nothing of radio gear, had to be explained, rationalized, obbled or even concealed, this practitioner has assembled a variety of ploys, some from personal experience and others from fellow-hobbyists, whose contributions I acknowledge with thanks and whose identities I had best keep to myself.

In the hope that some fellow-sufferer may find herein the solution to his particular problem, I have decided to compile and publish the best of these stratagems in what might be called **"Hamsmanship, or How to Build Your Amateur Radio Station Without Actually Shedding Blood".**

Old masters at the game — AM types and single-letter prefix gaffers — may find some of these tactics old hat. But they will realize that a whole new generation of amateurs has come along and, further, the problem of getting the stuff into the house without touching off domestic warfare has recalated astronomically in these days of nearly 100 per cent store-bought stations. Even the newest Novice, judging from the magaz ne photos, starts his career with an array of commercial gear that looks like the control panel of an Apollo moonship.

These new Hams need our help. Let us share with them our secrets and our methods The future — possibly even the survival — of amateur radio may well be involved One word of caution before we begin the lesson: Do not, repeat, do not leave this lying about the house for her to read Commit these pages to memory and then rip them out and either burn them or put them in an envelope and mail to Box 88, Moscow. That way they'll never be heard of again

Now, then

1. This one calls for the breezy, off-hand treatment. You bring in the new scope, linear, keyer or whatever it is and before she can start with, "How much did that cost?", you cry happily, "Boy, you couldn't beat this for $15" (or whatever figure the traffic will bear). Remember, you didn't say you paid only $15 for it — just that you couldn't beat it for $15 — and that's the gospel truth.
2. The old-mule-trader ploy. You come gaily into the house with your latest treasure, a smug grin on your face, and emit something like "Wow! Look what I traded old Haywire Magee out of for my old rotator." Never mind mentioning that you also forked over $250 in addition to that old rotator to make the "trade".
3. A variation of No. 2: Your line is, "Can you imagine the dope letting this go for only $35?". You sure can't, OM. His rock-bottom price was $150 and that's what you coughed up. But you didn't say you paid $35.
4. Another variation: You take the old rig to your friendly local Ham dealer who sells used gear on consignments for a commission. A few weeks later you report happily "Some guy bought my old rig and I got enough for it to get this new one". Yeah, enough maybe for the down payment — but who needs to know you still owe the friendly local, etc., $398.80?
5. Become a home-brewer. Spend long hours in the basement workshop. Cut lots of scrap metal loudly. Drill lots of holes ditto. Bang chassis around. Let the smell of soldering and scorched insulation permeate the house. Study schematics at the dinner table. On the air, talk loudly about the linear you're building. After two or three weeks of this, come proudly upstairs with the new rig, or whatever. Stripped of nameplate, of course, or even without front panel. Some time later you can "acquire" a cabinet or front panel for it and . . . "Look, Honey, this old Collins (or Heath or Swan or . . .) panel I picked up just fits the rig. Looks real commercial, doesn't it?"
6. You need a garage or workshop where you can cache the parts of a beam for this one. Then you make a big show of going into the shop with an armload of old aluminium tubing, busted TV antennas, etc. Emerge some days later, after the usual drilling and sawing noises, with the elements of your new tri-band beauty and, "See what I lashed up. Amazing what you can do with a bunch of old aluminium."
7. Your XYL has been bugging you about getting a new colour TV. So you agree to buy one if you can have the old one for parts. Show her those great articles about how you can build a five-band KW receiver with the parts scrounged from old TVs. You'll be surprised, and you hope she will be, too, at the nifty new (frequency counter, oscilloscope or whatever it is you dream of) you were able to build with those old TV parts (plus a few odds and ends from Heathkit, maybe).

Many other suggestions for inclusion in this article were considered and discarded for such reasons as requiring outright lying, being too impractical or far-fetched, or too susceptible of detection. Others simply were variations of one or more of the above, such as disassembling a Whizz-banger 2000 at a friend's shack and then bringing it home piece-by-piece in pocket-sized components; or installing a new KWM2 in your old Viking 1 cabinet.

None of those so far mentioned, however, can top the one reported by a Ham who of necessity shall remain unidentified here. At the time the first colour TV was acquired for the family, he convinced the XYL that only a 60-foot tower and super-duper king-size antenna would bring in the colour picture in their location. To this day she thinks that three-element trapped Lightningbird Tribander is what makes Doris Day pretty

From "The Lyrebird" Winter 1978 — ex 73 Magazine. ■

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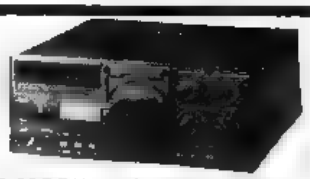

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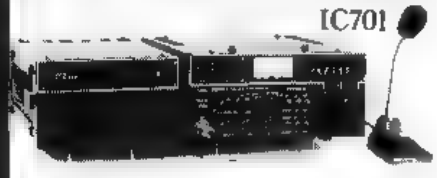

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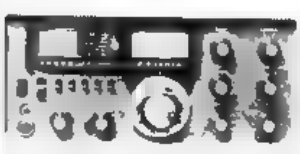

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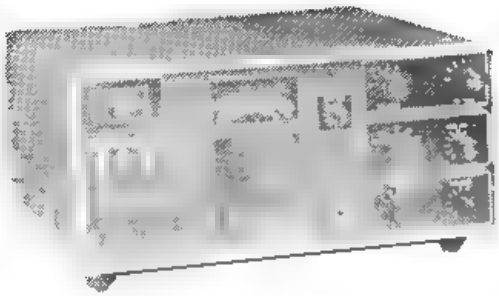

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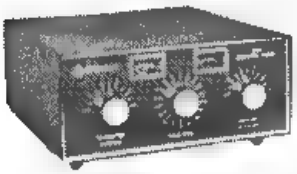

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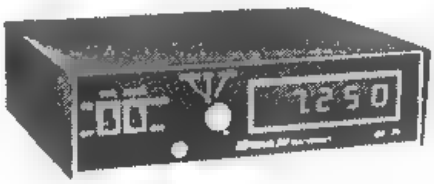

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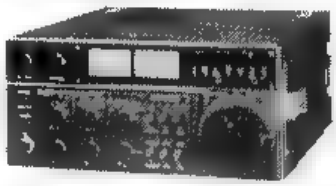

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Fred Herron VK2BHE
President, Summerland Amateur Radio Club

As I sat back and relaxed, I was thankful for the warm plush interior of the limousine. The driving snow beat mercilessly against the exterior of the vehicle, and I pitied the driver as the wipers shuddered against the rapidly accumulating snow on the windscreen while he fought to control the vehicle as it jolted through the heavy snowdrifts and over the dangerously icy surface of the road. Hey! Wait a minute! What has this all got to do with Amateur Radio? It sounds more like a scene from a Russian spy movie. In fact it was the last leg of my journey, as a guest of the Yaesu Musen Company in Japan, to visit the Yaesu Musen assembly line at Sukagawa, near Fukushima, about 240 km north of Tokyo.

I was in Japan, as leader of a group of 18 Australians, on an exchange visit between my home city of Lismore, NSW (the headquarters of the Summerland Amateur Radio Club), and the Japanese city of Yamato Takada. These two cities have a "Sister City" relationship extending back to 1963, which involves an exchange of citizens between the two cities about each two years, with the object of fostering friendly relations and better understanding between our two countries. The concept originated in Lismore and has since spread throughout Australia and Japan

During the course of numerous JA QSOs throughout the months preceding the tour, I had received many invitations to "eyeball" QSOs with individual JA amateurs and amateur groups and organizations, including a very warmly worded invitation from Mr. S. Hasegawa, the President of the Yaesu Musen Company. The story of the overwhelming hospitality extended to me by individual JA amateurs and groups would fill a book in itself, and because of limitations on space I will have to confine this narrative to my visit to Yaesu Musen.

Mr. Hasegawa had deputised a member of his administration, Mr. Chip Margelli K7JA, to be my guide and mentor for the visit to the Yaesu Musen Company facilities, and from the moment he met me at my Tokyo hotel that morning he proved to be a most knowledgeable and efficient young man who was obviously convinced that he was a part of the world's greatest amateur product organization. After a short cab ride to Tokyo station, followed by some mysterious dealings at ticket windows and platform barriers, we boarded an impeccably clean express train and settled comfortably into a typical carriage of what must be one of the finest railway systems in the world

As we travelled the long journey north to Fukushima, Chip told me about the interesting history and current operations of the Yaesu Musen Company, as well as about his work. He has been in Japan about 18 months, and is mainly involved in the production of English manuals for Yaesu equipment, which involves close co-operation with Company engineers in the research and development laboratory in Tokyo. He is also involved in liaison with overseas dealers and marketing outlets. From time to time I noticed through the train window that the weather outside appeared to be rather bleak, and as we climbed into higher altitudes snow began to fall. By the time we reached Fukushima we had a fully fledged snow storm on our hands, and I began to yearn for sunny Summerland. It was a thankfully short dash from the station, across icy pavements, to a nearby heated restaurant, where we were fortified by a delicious hot meal and a thimblefull or two of hot saki (they don't serve it in middies). Then began a nerve-wracking car ride, through driving snow, to the Sukagawa facility of Yaesu Musen, which brings me back to the opening paragraph of this story.

On our arrival at Sukagawa we visited the first of the three assembly plants located in the area. The three plants were very similar in appearance, layout and operation, so a general description here will be sufficient to cover them all. The overall impression is of cleanliness, order, and intense activity and concentration on the work at hand An overpowering smell of burning resin prevails throughout the buildings. The photograph accompanying this article shows the standard production line configuration. Although Japan is a male orientated society, this is one area in which the females dominate Apart from management staff, and a very small number of males in quality control sections, the production line staff are exclusively female They made a pretty picture that day, with their white caps and white gloves, as they worked intently on the job at hand with an occasional quick shy smile at the strange foreigner who walked down the line. We saw the rigs grow from the bare bones of the basic chasis frame and a single PC board, to the finished packaged product ready for shipment.
a particular point in each production line it was rather unnerving to see delicate little Japanese women thumping, banging, crunching, and bashing gear which we would normally handle with kid gloves, just for the purpose of revealing possible hidden faults. Predominant among the rigs we saw coming off the lines that day were the FT-221R, FT-227R, and of course the perennial FT-101E/EE. However, pride of place went to the revolutionary new FT-901DM, which all at Yaesu believe to be the pace setter for the future. Testing and quality control procedures were obviously carried out meticulously, and I was left in no doubt that it would be the rare fault indeed which slipped through.

Sukagawa assembly line of Yaesu Musen Co. Ltd.

Apart from the obvious quality of the production facilities, general staff amenities were excellent and morale was high. It was refreshing to see a dedication to the production of high quality and high output which is rarely seen these days. Loyalty to the product and the Company was evident throughout the organization. For the statistical minded, the Company employs about 650 people in three assembly plants, plus administration offices and a research and development laboratory. Approximately 100 rigs come off the lines each day.

Our departure from Sukagawa was marked by the minor drama of the driver using a millet broom to sweep the snow off the bonnet and windscreen of the vehicle which took us back to Fukushima station. After returning to Tokyo, I spent the next day browsing through the Akihabara District, world renowned as the Mecca for electronic enthusiasts, with more electronic stores to the square mile than you can possibly imagine—but that is another story.

My visit to the Yaesu Musen Company, a truly remarkable organization, will long be remembered as a most memorable and exsiting experience

SAYONARA! ■

SETI
(SEARCH FOR EXTRA-TERRESTRIAL INTELLIGENCE)

Once in a while something unusual turns up which seems worth sharing with members. In 1976 at the request of a great number of ITU Member Countries, the CCIR adopted Question 17/2 on "Radiocommunications Requirements for Systems to Search for Extra-terrestrial life".

AR readers will be familiar with the abbreviations ITU and CCIR in particular relation to WARC 79. The ITU have issued a series of papers relating to itself and its technical committees for the 10th World Telecommunication Day, 17th May 1978 and the articles now to follow are printed with due acknowledgement to the ITU.

1.1 BACKGROUND

Many scientists believe that life is common in our galaxy and that it could develop into civilizations. Civilizations with similar technical achievements to ours could communicate with each other by radio waves up to distances of 100 light years.

The possibility of receiving communications from an extra-terrestrial intelligence (ETI) was first pointed out in 1959, and a search was proposed for possible signals (Cocconi and Morrison, 1959). Independently, Drake and others attempted to detect signals from possible civilizations on nearby stars. Similar attempts have since been made at other observatories (Sagan and Drake, 1975). The first "aimed" signal was transmitted into space from the Arecibo Observatory in November 1974 (NAIC, (1975).

Using present technology it is feasible to detect radio signals arriving at the Earth from other civilizations in the galaxy. Such a programme is called SETI (Search for Extra-Terrestrial Intelligence).

There are at present several SETI programmes in progress (Sagan and Drake, 1975). These include the following:

1.1.1 Bridle and Feldman, at Algonquin Radio Observatory in Canada, are searching nearby stars at 22.2 GHz, near the H_2O line

1.1.2 Dixon and Cole, at Ohio State University Radio Observatory, are making an all-sky survey near the 1.4 GHz hydrogen line (Dixon and Cole, 1977). This survey has been in progress continuously for three years.

1.1.3 Drake and Sagan, using the Arecibo Observatory in Puerto Rico, are observing several nearby galaxies at 1420, 1653, and 2380 MHz (Ponnamperuma and Cameron, 1974)

1.1.4 The Soviet Union SETI programme (USSR, 1974; USSR, 1975).

1.1.5 Kardashev, using the Eurasian Network, in the USSR, is searching for pulsed signals, with hemispherical coverage (Kardashev, 1976)

1.1.6 Troitsky, using the Eurasian Network, is searching for pulsed signals in an all-sky survey at 1.9, 1.0 and 0.6 GHz (Troitsky *et al.*, 1974).

1.1.7 Zuckerman and Palmer, using the NRAO Observatory in Greenbank, are searching nearby F, G, and K type stars near 1420 MHz (Palmer and Zuckerman, 1972).

1.1.8 The United States National Aeronautics and Space Agency is currently conducting a search near 1.5 GHz (Tarter *et al.*, 1977).

1.2 Average distance between civilizations in space

The average distance between civilizations must be inversely proportional to the cube root of the space density of the civilizations, which is also proportional to their average life.

For the existence of civilized life within 100 light years of the Earth to have a high probability, one must assume an average life of at least 107 years.

1.3 Other civilizations

Based on the following argument some experimenters may assume that the other civilization would be more advanced than ours. We have only been able to communicate with an equivalent civilization by radio waves during the last 30 years. Consequently, if they can communicate, but are nevertheless behind us, the state of development of the other civilization cannot be more than 30 years behind ours. As 30 years is an extremely short time compared with the time scale of evolution of life, the probability that this would be the case is very small. Similar logic shows that they are unlikely to be only slightly ahead of us. In the previous section it is stated that an average life of communicating civilizations would be of the order of 107 years. It is concluded therefore, that the other civilizations are probably considerably more advanced than ours.

Such civilizations may have formed a community through radiocommunications and may have been continuously sending signals to suggest that we join the community

1.4 Consequences of success

Interstellar communication is merely hypothetical before the first contact is made. However, as soon as a contact is established, practical implications to us may be significant. The large-capacity communication following the first contact may contain information far superior to our knowledge.

1.5 Types of stars to be sought

Stars which are similar to the Sun may have planets suitable for life similar to that on the Earth. Such stars have surface temperatures of 4500 to 6500 K and luminosity of 0.3 to 3 of the Sun, and are known as main sequence stars with spectral types of F, G and K (Sagan, 1973).

The following paper on this subject is one in a series of feature articles prepared by the ITU Public Information Service on the occasion of 10th World Telecommunication Day.

2. RADIO MESSAGES FROM OTHER CIVILIZATIONS

Assuming that other intelligent beings might broadcast messages to the planet Earth, what would a radio message from another civilization be like. To start with, it might be extremely long, taking many years to complete. Any assertion about the frequency an extra-terrestrial communicator would use, the nature of his civilization, his reasons for communicating with us, indeed his very existence can be little more than speculation. Even when informed by our scientific knowledge, the obvious speculativeness of these assertions only serves to demonstrate that our scientific

knowledge is terracentric — that is, restricted to what we can learn from a point of observation on the third planet circling a sun in a remote spiral arm of the Milky Way, one galaxy of billions in the universe. In short, we know very little. When we raise the question of intelligent life elsewhere, we should recall that we still do not understand how life emerged on earth.

Although not the slightest encouraging sign was found for many years, interest in the possibility of such an event as picking up artificial signals from outer space has grown steadily. Finally in 1965, the ITU Centenary year, Soviet scientists announced that they had observed regular radiation fluctuations of a distant star. A galactic radio source — called CTA 102 — seemed to be fluctuating in its effective radiated power in such a way as to suggest a deliberate form of modulation. Some scientists were sceptical, however, not because they did not believe in the possibility of other civilizations in the universe, but simply because the particular object seen by the Soviets was a quasar, one of the biggest emitters of radio waves and light yet found. For any intelligence to make it pulsate, a super-super race would indeed have been necessary. But since this radio source was over several thousand light years distant, there was no chance of such a direct verification of the matter as an interrogation of the star by a terrestrial radio station (a light-year is the distance which light travels in one year, namely 9 461 000 000 000 km or 298 792.5 km per second). We realise that the most difficult of all obstacles to contacting people on other planets is the astronomical distance between possible radio sources and the planet Earth. The signals picked up from CTA 102 consequently were emitted many thousands of years ago.

The radio astronomers of ITU Member countries use the largest and most sophisticated modern radio telescopes to listen for radio messages from deep space. But the astronomers have not heard anything yet. This may mean that either nobody is out there or that perhaps the astronomers are listening on the wrong frequency. An extra-terrestrial could be using any one of an infinite number of possible radio frequencies. There are of course many frequencies which are subject to interference from natural radio sources in outer space. These include radio emissions from speeding electrons caught in galactic magnetic fields, the low temperature background noise probably left over from the big bang which created the universe, and possible radio emissions caused by changes in the rotational and vibrational motion of molecules in our own atmosphere. Only part of the microwave spectrum — roughly the range between 1 and 30 GHz — is only minimally affected by this interference. Here a cosmic window was readymade for use by our astronomers and hypothetical extra-terrestrial broadcasters.

The Geneva 1963 Extraordinary Administrative Radio Conference, reserved worldwide the frequency 1420 MGz or 21 cm wave length, for radio astronomy. It is a natural frequency of emission of the hydrogen atoms in space and was discovered in 1959. The discoverers, two astronomers, Giuseppe Cocconi and Philip Morrison, argued that even very different species, once they had reached our level of technological development, would recognize hydrogen as a kind of cosmic common denominator and use its frequency for inter-stellar communication.

Unfortunately, the very abundance of hydrogen, in the form of vast gas clouds in inter-stellar space, means that there will be considerable noise on this frequency. Thus, astronomers found themselves hypothesizing that the extra-terrestrial broadcaster would be transmitting signals, not on the hydrogen frequency, but on a band in its vicinity. Consideration of these factors establishes a preferred frequency band several hundred Megahertz wide, near 1.5 GHz. A narrow band of frequencies centred at the 4830 MHz formaldehyde line and other frequencies, especially these currently used by radio-astronomy, will also be observed to search for extra-terrestrial life.

A group of U.S. scientists under the leadership of Dr. Woodruff Sullivan of the University of Washington, Seattle, came to the conclusion that the 300 star systems nearest the Earth could detect the presence of intelligent life here from our television signals, if their inhabitants have at least the technical knowledge and curiosity of late twentieth-century man. These scientists found that the most intense radio emissions from Earth come from the United States and the USSR. These radar signals could be detected 250 light years away by an observer with our present technology who built an antenna system like the array of a thousand 100-metre dishes proposed for the United States project **Cyclops**. However, these extremely powerful radars are very few in number and their frequencies are constantly changing, so they would be unsuitable for long-term monitoring. The University of Washington scientists calculate that a strong five megawatt ultra high frequency (UHF) television station could be detected by a receiver of the **Cyclops** type up to 25 light years away. About 300 stars and their orbiting planets lie within that range. Although there are 15,000 television transmitting stations in the world, the American scientists say that the problem of detecting radio leakage from the Earth is equivalent to detecting the strongest single station alone. They show that it would pay an investigator to sweep the radio-spectrum with an extremely narrow bandwidth of 0.1 Hz looking for individual stations, rather than attempt to catch several transmitters at once with a much broader bandwidth, as all Earth-based searches to date have done.

Some astronomers point out that they have only been listening for intelligent signals for the last 17 years and have only been broadcasting for the last 50 years. Such time spans are infinitesimal on a galactic scale. Most extra-terrestrial broadcasters are probably going to have had much more experience with inter-stellar communication than we have. If their pattern of technological development is similar to ours, they are going to be much more advanced.

Many astronomers engaged in the search for extra-terrestrial intelligence argue that the exchange of scientific and technical information would be of inestimable benefit both to us and them. A few scientists have tried to attract the attention of extra-terrestrial broadcasters. And, in 1974, the first "aimed" signal, a complex message was transmitted from the Arecibo telescope in Puerto Rico, with its antenna 3000 metres in diameter. Proponents of the search for extra-terrestrial or humanoids argue that it has a sound scientific basis, pointing out that it is just as ridiculous to assume there is nothing out there as it is to state without proof, that the universe is teeming with life. They are simply trying to test scientifically whether such life exists outside our solar system.

But what would happen if we ever did receive a message or made contact in any other way with extra-terrestrials, with people on other planets? Should the news of radio contact with other civilizations ever be made public?

Responsible scientists who have investigated this question for their national space administration, think that this may not be advisable. And yet the influence of such discovery might have beneficial effects on international relations leading to greater unity of mankind on earth based on the age-old assumption that any stranger is threatening.

Would any really superior civilization wish to do us any harm? If we suddenly found ants wanted to talk to us by radio in a manner we could understand, would we therefore immediately exterminate them all, without listening to them and learning all we could?

A much more positive approach would be to consider the spiritual and philosophical benefits that would result from such an exchange of knowledge leading to new respect and humility if we found that man was not alone in the universe. ■

PREFERRED VALUES

Roy Hartkopf VK3AOH

Have you ever wondered why the values of components such as resistors, capacitors and even some inductances are given in what appear to be odd numbers such as 22, 47, 68 and so on? Actually the numbers are very carefully chosen, and are part of a system of what are called "preferred values."

In the early days of radio the values of components were given what might seem to be normal values, 10, 20, 30 and so on. But if we look at these values we see they are not very logical after all. If we look at the older series of values we see that the first two, 10 and 20 go up by 100 per cent. All resistors vary in actual value from their nominal value. The manufacturer builds to a tolerance, usually 5, 10 or 20 per cent. So with 20 per cent tolerance components there is a large gap — between 12 and 16 — where there is no value available. At the other end, 90 to 100, we find that a low value minus 20 per cent gives 80, while the 90 plus 20 per cent gives 108. So we have the silly situation where a low 100 value component can be lower than a 90 value component.

FIGURE 1: 20% preferred value series.

So the manufacturers of components decided to make a more logical system, where the next value began where the previous one stopped. With a 20 per cent tolerance the 10 value could vary from 8 to 12, so the next value was chosen as 15. The bottom value tolerance of this would be 12, which is the top tolerance of the 10 value. The top tolerance of the 15 value would be 18, so the next value chosen was 22, where the bottom tolerance would be 17.6 — very nearly the same as the top tolerance of the 15 value. And so the series goes on 10, 15, 22, 33, 47, 68, 100, and so continues always going up by the same ratios. If we want more accurate tolerances, say 10 per cent or 5 per cent then we have intermediate values based on the same principle.

The sketch above shows how the components with this new arrangement cover the full range without overlapping, and they all have the same 20 per cent tolerance. Apart from avoiding the situation that was mentioned above, where a 90 value high tolerance component could be higher than a 100 value low tolerance component, there is the big advantage that instead of needing nine different values to cover the range we now only need six. This is particularly helpful where a firm is dealing with stocks of many thousands of components.

At first only resistors were available with preferred values but now almost all components have gone over to this system. By the way, some of you may have been puzzled by a coding on capacitors which has come out recently. You will see something like this — 33^2. What the little 2 or 3 or whatever means is that the value is in picofarads and the number — in this case 33 — is followed by two zeros. So the value in this case is 3300 picofarads or .0033 microfarads. In the same way 47^4 would be 470000 picofarads or .47 microfarad. It is as well to remember this coding as it will be used a lot in the future.

From Zero Beat, Dec. 77 ■

COAXIAL CABLES AND CONNECTORS

Bert Grove
6 Trueman Ave., Salisbury East, SA 5109

The following article is reproduced from an old edition of the Westlakes Radio Club Monthly Newsletter. I have always found little facts like this interesting, and in some cases a knowledge of the significance of seemingly disjointed letters and numbers helps to fix them more firmly in the memory. I hope it will be of interest to readers.

HOW THEY GOT THEIR NAMES

Did you ever wonder why the coaxial cable that you specified was called "RG/U", or the connector that goes with it was called a "BNC"?

The "RG" designations came about through a United States Navy coding system designed to be compatible with a huge government parts stocking and numbering system. The letters don't mean anything themselves. "RG/U" always indicates a cable; and the corresponding "UG" a coaxial connector. The number in the designation refers only to the order in which cables were developed and then approved by the military. They have no relationship to the cable diameter or electrical characteristics.

Connector type designations have a more interesting story behind them. The UHF connector referred to its "ultra high frequency" operation. In the days of World War II, 200 MHz was ultra high frequency. But not for long. As engineers developed higher frequency systems the need for coaxial connectors with better performance

Today's popular "N" type connector was developed by, and named after, a man in the Bell Laboratories named Neill. The "HN" type soon followed as a high voltage version of the "N".

The "C" type connector was named after its developer, Cal Concelman, an engineer at Amphenol RF Division and its predecessor companies.

As smaller cables into use, the "BNC" connector was developed jointly by Concelman and Neill. Hence the "N" and "C". The "B" comes from an old type "B" connector. No one knows what the "B" meant. The next logical step was to name the threaded version of the BNC the "TNC" and so on.

That was as far as the article went. I was particularly interested in the last paragraph. I have always (well ever since I first came across them) thought, since "T" meant threaded that the "B" stood for "bayonet". I wonder if any reader knows for sure? ■

PRACTICAL HINTS

When replacing a transistor in an awkward position the job will be much easier if the leads are cut to different lengths. This allows you to insert one lead at a time instead of trying to get all three leads through the three holes at once. The leads projecting from the back of the board can be trimmed level after the transistor is soldered in place.

★ ★ ★

A neat and simple way of making taps on a coil is to make a loop in the wire and twist it. Finish the coil and then cut the end of the loop, clean the leads and solder the twist.

★ ★ ★

If you are looking for a former for large coils try a short piece of PVC conduit, the type electricians use. This is obtainable from about ½ in. to 2 in. For small coils the ideal thing is to keep a set of knitting needles. Wind the coil on them and then slide it off. To make a neat job of a coil on a neosid or other ¼ in. former wind it on a knitting needle of a slightly smaller diameter and then ease it on to the coil former.

★ ★ ★

If a receiver is giving very noisy reception you can check it by removing the aerial. If the noise continues then it is in the receiver but if the noise level drops it is being picked up by the aerial.

★ ★ ★

If a dial cord becomes loose on the pointer a drop of nail polish on the knot or connecting loop will fix it.

★ ★ ★

Aluminium can be soldered quite easily. Put a drop of engine oil on the spot to be soldered and then clean the aluminium under the oil with a sharp knife. Without removing the oil, tin the aluminium in the usual way. Use a large iron as the aluminium conducts heat very rapidly and it is hard to get the joint really hot.

Mechanical hum in equipment is usually caused by the transformer laminations vibrating. By tightening the screws which hold the transformer together this can often be eliminated.

★ ★ ★

Dial lamps in awkward positions which cannot be reached by hand can be removed by forcing a piece of sleeving over the bulb and using this to unscrew the bulb.

★ ★ ★

If you have some wire which is kinked and you want to get it straight, tie one end round a post or put it in a vice and put the other end until you feel the wire stretching slightly. It will then be perfectly straight.

★ ★ ★

By wrapping several turns of solder or wire around the tip of one jaw of your long nose pliers you can strip insulation from wires without damage to the strands since the jaws cannot close completely and cut the wire. ■

WHO TAKES CARE OF THE WATCHKEEPER'S DAUGHTER?

A BRIEF HISTORY OF THE WIA INTRUDER WATCH

Allan Dobie VK3AMU

Following the story of 21 years of intruder watching by the RSGB in "AR" for October, and the Federal President's QSP in the same issue, it seems an appropriate time to outline the history of our own WIA Intruder Watch.

The decision to initiate intruder watch action was taken by the Federal Council in 1967 during the presidency of Max Hull VK3ZS.

David Wardlaw VK3ADW was appointed Federal Co-ordinator, and set out recruitting a series of State groups.

The hundreds of hours of voluntary work put in by individuals since then is, like QSL Bureaux and other aspects of WIA activities, another story.

It will suffice to pay tribute here to the people who have been, or are doing the job up to the present time.

Every month, the co-ordinated reports from all States are arranged in order of frequency, and delivered by hand to the Radio Frequency Management Division of the P. and T. in Melbourne for study and action.

A copy is also sent to the headquarters of the IARU Monitoring Service in England.

IN THE FEDERAL FIELD

Co-ordinator — 1967 to 1971, David Wardlaw VK3ADW; 1971 to now, Alfred Chandler VK3XB, assisted by Ivor Stafford VK3XB.

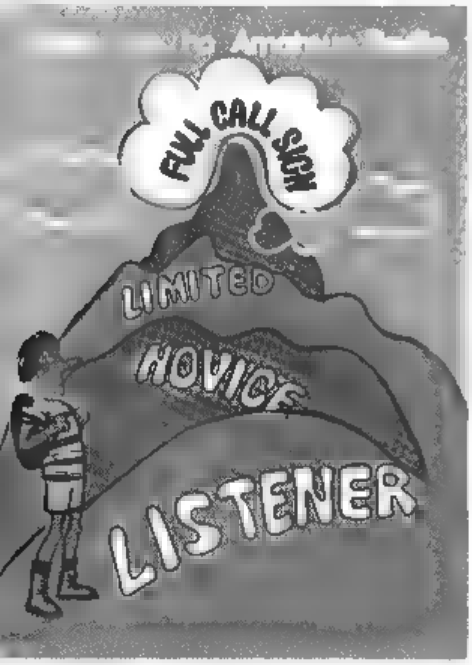
BY DIVISIONS

VK1: 1974 to now, Ted Pearce VK1AOP. VK2: 1970 to 1974, Bill Jenvey VK2ZO; 1974 to now, Les Weldon VK2AFG. VK3: 1968 to 1969, Morton Davis VK3ANG; 1969 to 1971, Alf Chandler VK3LC. 1971 to 1975, Albert Cash (SWL), 1975 to now, Ivord Stafford VK3XB. VK4: 1970 to now, Murray McGregor VK4KX. VK5 1971 to 1972, Bill Franzi VK5FR, 1972 to now, Leith Cotton VK5LG. VK6: 1973 to 1975, Ross Greenaway VK6DA, 1976, Albert Cash (SWL), 1976 to now, David Couch VK6WT VK7 1971 to 1972, Ian Pearson VK7KB, 1972 to now, Max Ives VK7MX VK8. 1975 to now, Henry Andersson VK8HA.

Note: From 1975 until now Alf Chandler VK3LC is also IARU Region 3 Co-ordinator.

Weekly schedules are kept with both the USA, Bill Conklin K6KA, and the UK, Stan Cook GB2IW, as well as with the VK4 co-ordinator, VK4KX. ■

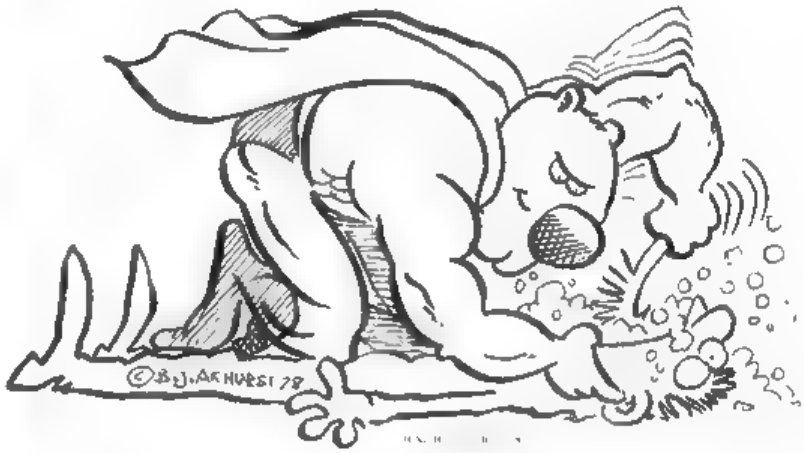
WIA PUBLICITY



The above 2 photos are copies of some of the WIA posters designed by Julie Scott, wife of Graeme VK3ZR

These and other posters will be available for public displays by Divisions, etc

HELP CLEAN UP OUR BANDS!!



Cartoons courtesy CB Australia

RIGHT

Meet Your Executive

Left to Right Bruce Balholm (VK3JV) observer Graeme Scott (VK3ZR) Peter Wolfenden (VK3ZPA) Peter Dodd (VK3CF Secretary) David Wardlaw (VK3ADW President), Bill Roper (VK3ARZ) Ken Seddon (VK3ACS), Keith Roget (VK3YQ).

NIGHTOWLS MOPOKE CLUB

Bob Whitehead VK3NHA

We advise the formulation of a new club and associated awards for night owls.

Certificates are available for issuance at this time, bannerettes are currently being screen printed, and it is hoped that statuettes will be available shortly

Costs have not been finalised but should not exceed a total of seven dollars.

There are four charter members at the moment, Bob VK3NHA, Trevor VK5NTB, Russel VK2NUN, and Garry VK7GM, with six more charter members being sought.

The current meeting place is novice 80m, any morning.

INTERIM MOPOKE CLUB RULES

1. The purpose of the club and award is to further the use of the bands in the wee small hours, to ensure continuing contact and conviviality among club members and to provide some impetus and reward for aspiring night owls.
2. Qualification for initial and continuing active membership is:—
   (a) thirty contact hours between 0100 and 0600 hours local time.
      (i) Contacts which have commenced *prior* to 0600 may continue to be counted up to 0700 local time.
      (ii) Where contact is between stations in differing time zones, the most advantageous 0600 to 0700 local time shall apply.
   (b) To include at least two continuous four hour working periods (between 0100-0600/0700) with any station, or series of stations.
   (c) Contact between 0100-0600 of at least one hour with a committee member.
   (d) Any band, any mode legally permissible
   (e) For continuing active valid membership, a total of at least four hours per month between 0100-0600, subject to health or acceptable limitations.
3. Contacts are not limited to club members.
4. Membership is open to any country.
5. Net operation is permissible.
6. Neither QSL cards nor detailed logs are required, simply a list of contacts claimed showing date, duration in local time, band and mode.
7. Three contacts at random from the list supplied by the applicant will be checked in writing by a committee member.
8. The committee initially to consist of the ten charter members, thereafter the committee to be elected annually by simple majority of all members.
9. Club nets, competitions, awards and constitutional amendments to be decided upon by simple majority of members fulfilling the conditions of rule 2(e)
10. Other decisions affecting the club to be vested in the committe.
11. Contacts count as from 0100 local time July 1st, 1978.
12. Allocation of membership and awards may be effected by any one committee member after consultation with, and having the agreeance of, the simple majority of current committee members.
13. The decisions of the committee shall be final and binding on all club members.
14. The basic award shall consist of:— (a) Certificate, (b) Bannerette, (c) Mopoke statuette/key chain miniature.
15. Subsequent awards and/or endorsements as decided by consensus of members eligible under rule 2(e) to vote.
16. An inactive member may restore his or her voting rights at any time by fulfilling rule 2(e) for two consecutive months.
17. The club to be run on a non-profit basis, except that funds may be accrued against routine overheads and for such purposes as decided by the committee after seeking the views of all valid active members under rule 2(e).
18. Any funds at all times to be under the direct control of the committee.
19. A formal constitution to be adopted as soon as practicable.
    be final and binding on all club mem-

Further information is available from Robert Whitehead (VK3NHA), Mopoke No. 1, 7 Spensley Street, Rosebud, Victoria 3939, Australia. Tel. (03 059-86 4383 or (03) 509-88-6261. ■

AMATEUR SATELLITES

Bob Arnold VK3ZBB

OSCAR 8 PREDICTIONS

Thanks to Dick Smith Electronics for publishing the Orbital Data for OSCAR 8 as a supplement in the October edition of AR. This data will assist operators to track the satellite and no doubt improve many signals particularly on Mode J.

In the near future Dick will be publishing more basic data on OSCAR 7 and 8 which will fill in the gaps for newcomers. Keep your eyes on Dick's adverts.

OPERATIONS

Due to publication deadlines, little time has passed since my last report and news is therefore scarce. As at the middle of October there is some doubt on the status of OSCAR on Mode B. This mode generally appears as per the BBA schedule and is being worked by a few stations in VK and ZL.

Information received via the AMSAT Pacific Net indicates that there could be a partial battery failure which is not totally unexpected after almost four years of operation. From time to time restricted use of Mode B is requested but it is not possible to convey this information via these notes due to the obvious time span between writing the notes and their publication.

To keep up to date with the status of OSCAR 7, there are two methods —

(a) Listen to the CW messages on AO7 beacons on 29.502, 145.972 or 435.1 MHz.
(b) Listen to the AMSAT Pacific Net which is at 1100 GMT on Sundays on 14.280 MHz.

We all hope that OSCAR 7 is not following the same signs of failure that plagued AO6 prior to its demise. We will certainly miss the excellent communication facilities afforded by this satellite.

AMSAT OSCAR 7 AND 8 DATA CALENDAR

In co-operation with AMSAT, Skip Reymann W6PAJ, expects to have available by the end of November an AMSAT-OSCAR ORBITAL PREDICTIONS calendar containing all orbits of the AMSAT-OSCAR 7 and 8 satellites for 1979.

The orbital calendar will be available post paid for $5.00 US funds or 20 IRCs ($3.00 to AMSAT members, and free **on request** to AMSAT Life Members). Overseas orders will be airmailed

From outside the US, payment may be made by international postal money order or by cheques made out in US funds, or by US currency. Send orders to AMSAT or to:

Skip Reymann W6PAJ,
PO Box 374, San Dimas,
California 91773, USA.

Orders may also be charged to VISA or Master Charge (Be sure to provide your

account number and expiration date on your charge card.)

IMPORTANT: To speed up handling of your order, please include a gummed, self-addressed label. Proceeds from the orbital calendar benefit AMSAT.

PHASE 3 OSCAR

We understand from a report in "Ham Radio" that the following operational frequencies for Phase 3 OSCAR are now being determined —

Uplink 435.110 to 435.290 MHz
Downlink 145.810 to 145.990 MHz.

Beacons will operate on 145.805 and 145.995 MHz.

GREETINGS

To all OSCAR operators, present and past — Christmas Greeting and good operating in 1979.

ORBIT PREDICTIONS — JANUARY, 1979

	OSCAR 7			OSCAR 8		
Date	Orbit No.	EQX GMT	EQX °W	Orbit No.	EQX GMT	EQX °W
1	18120	0145	86	4203	0035	48
2	18132	0045	71	4217	0040	50
3	18145	0140	85	4231	0045	51
4	18157	0040	69	4245	0050	52
5	18170	0135	83	4259	0055	54
6	18182	0035	68	4273	0101	55
7	18195	0130	81	4287	0106	56
8	18207	0030	66	4301	0111	58
9	18220	0125	80	4315	0116	59
10	18232	0025	65	4329	0121	60
11	18245	0120	78	4343	0126	61
12	18257	0020	63	4357	0132	63
13	18270	0114	77	4371	0137	64
14	18282	0015	62	4385	0142	65
15	18295	0110	75	4398	0004	42
16	18307	0010	60	4412	0009	44
17	18320	0104	74	4426	0014	45
18	18332	0005	58	4440	0019	46
19	18345	0059	72	4454	0025	47
20	18358	0154	86	4468	0030	49
21	18370	0054	70	4482	0035	50
22	18383	0149	84	4496	0040	51
23	18395	0049	69	4510	0045	53
24	18408	0143	82	4524	0051	54
25	18920	0044	67	4538	0056	55
26	18933	0138	81	4552	0101	57
27	18945	0039	66	4566	0106	58
28	18958	0133	79	4580	0112	59
29	18970	0034	64	4594	0117	61
30	18983	0128	78	4608	0122	62
31	18995	0029	63	4622	0127	63

■

QSP

160m PETITION

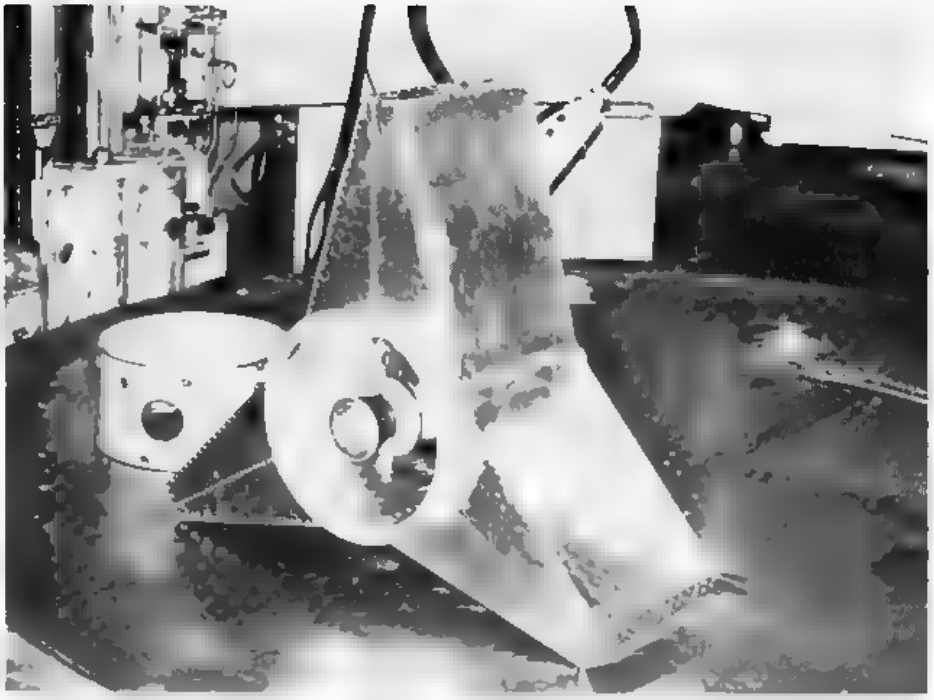
Some 415 amateurs signed the petition organised by Max Dotson VK2GE for extensions to the 80 metre and 40 metre bands to 3.8 MHz and 7.3 MHz respectively. Having regard to the closeness of WARC 79 the signed papers were passed to the Chairman of the APG Committee 2, so that he may use this interest in whatever manner is possible.

ARRL VIDEOCASSETTES

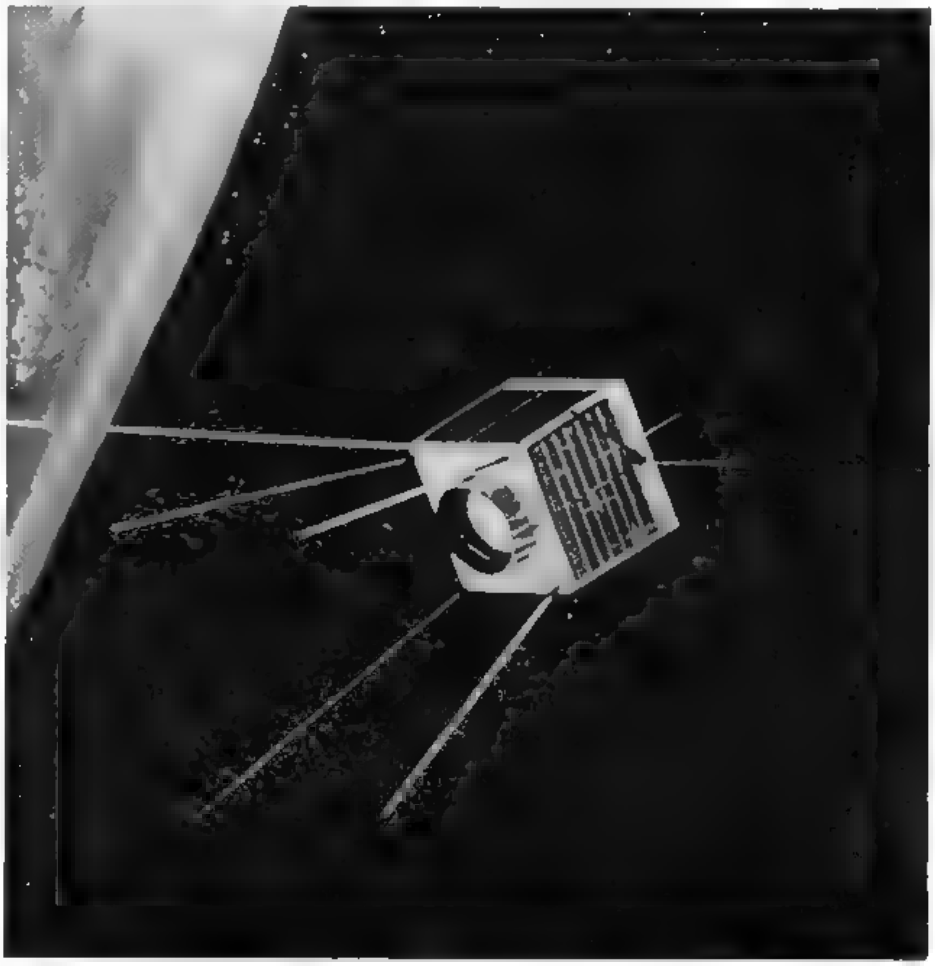
By now many amateurs in Australia will have viewed the ARRL films. It was interesting to read in Worldradio of August 1978 that the producer was Dave Bell W6AQ. Dave won an Emmy award in June as the executive producer of a documentary series on Science and Health, "Medix".

BC RADIO REPORTS

Sam Voron VK2BVS, reports that hourly amateur radio propagation reports are given over Radio 2GB, 870 kHz, following the weather report some four minutes past the hour. These begin after the midnight readings daily and is on a trial basis. Listeners' interest is sought via reports to the station to keep the reports going as an amateur PR function. ■



A prototype of Amsat Phase III satellite under test. The arms of the satellite carry the solar cells and in the centre is the "kick" rocket motor which will be used to send the satellite into elliptical orbit.—Acknowledgements to Amsat for this photo and descr ptive article published in October AR



An impression of Oscar 8 spacecraft in earth orbit by WA6TUF — Amsat picture

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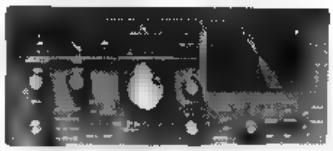

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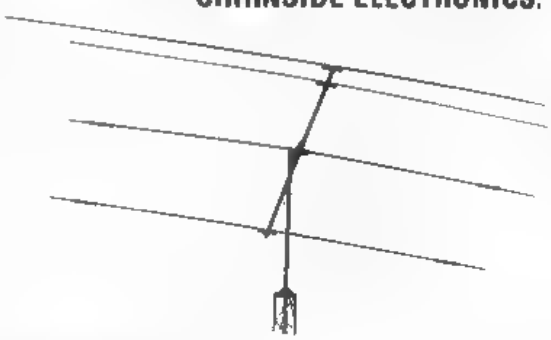

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AMTENNEA TYPE AM-v-5 80-10 M.TRAP VERTICAL.

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Our shop is in a very suitable location and elegant environment. It is in reach of most Sydney customers. We have a large showroom and instant service available.

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KENWOOD AMATEUR RADIO

Yours sincerely,
P. M. SCULZ.
PROPRIETOR.

TS-820	H.F. Transceiver
TS-820S	H.F. Transceiver with DG-1
DG-1	Digital Display
VFO-820	VFO for TS-820
SP-820	Speaker for 820
BS-8	Pan Display for TS820/820S
DS-1A	DC Converter for TS820/820S TS520S
YG-88C	Crystal Filter
R-820	Communications Receiver
YG-88A	AM Crystal Filter for R800
YG-445C	C.W. Crystal Filter for R820 (500 HZ)
YG-445CN	Narrow C W Crystal Filter for R820 (250 HZ)
TS-520S	H.F Transceiver
VFO-520S	VFO for TS-520S
SP-520	Speaker for 520
YG-3395C	Crystal Filter
BS-5	Pan Display for TS520/TS520S
DG-5	Digital Display and Frequency Counter
DK-520	Digital Adaptor Kit (connects old TS-520 to DG5)
TV-502S	2 m Transverter for 520 & 820
TV-506	6 m Transverter for 520 & 820
TS-600	6 Metre all Mode Transceiver
TS-700	2 Metre all Mode Transceiver
TS-700S	2 Metre all Mode Transceiver
TS-700SP	2 Metre all Mode Transceiver
VOX-3	VOX Unit for TS-700
SP-70	Speaker for TX-700
VFO-700S	Remote VFO for TS-700SP
AT-200	Antenna Tuner
TR-2200A	2 Metre FM Portable
VB-2200A	Power Booster for TR2200A
MB1A	Mtg. Bracket for 2200
TR-7200	2 Metre FM Mobile
TR-7200G	2 Metre FM Mobile
VFO-30G	VFO for TR-7200 Crystals for TR-2200 and 7200 (Pair)
TR-7010	2 Metre SSB Mobile
TR-3200	70 cm FM Portable
TR-7400A	2 Metre Digital Mobile (800 Ch 25W)
TR-7500	2 Metre Transceiver (100 Ch 10W)
RS-6	AC Power Supply for TR-7500
PS-8	AC Power Supply for TR-7400A
R-300	Communications Receiver
MC-50 *	Desk Microphone 500
MC-10 *	Hand Microphone 50K
MC-35S *	Hand Microphone 50K
HC-2 *	Ham Clock
MC-30S *	Hand Microphone 500
HS-5 *	Headphones
HS-4 *	Headphones
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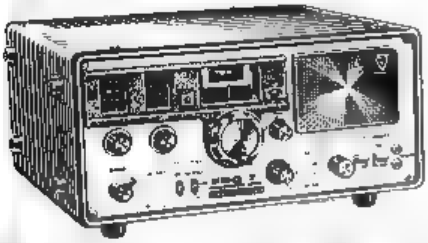

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Additional Mast Clamps	$?
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Constructed for long trouble-free operation 200 kg vertical weight capacity Extra heavy duty disc brake that prevents wind-milling

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AUSTRALIA'S LARGEST SELECTION OF BEAM ANTENNAS: 3, 4, 5 ELEMENT YAGIS, V-QUADS, Y-QUADS, etc.

Wilson — SY-1, 10-15-20m, 4 elem. Beam	$339
Wilson — SY-2, 10-15-20m, 3 elem. Beam	$268
Cushcraft — ATB-34, 10-15-20m, 3 elem. Beam	$289
Hustler — 4 BTV w/80m Resonator, Vert. Antenna	$135

FDK MULTI Palm II

NEW RELEASE!

2m FM POCKET TRANSCEIVER

SPECIFICATIONS:

Transceive Frequency Range 2 MHz in 144-148 MHz, Transceive Channels 6 Channels Mode of Operation: FM Antenna Impedance 50 Ohms unbalanced, BNC connector Power Requirement 12V DC (Negative Grounded), Power Consumption Transmit 300 mA, Receive 100 mA, Stand-by 25 mA Weight 1.03 lbs. (470g) Repeater Offset ± 600 kHz Modulation Variable Reactance phase modulation Max. Deviation ±5 kHz; Microphone Condenser Microphone. Receiver Double conversion superheterodyne (1st IF = 16.9 MHz, 2nd IF 455 kHz), Sensitivity —4 dBu (NQ 20 dB); Audio Output Maximum 0.3 Watts Attachment Rubber ducky antenna N cad battery pack, DC cable with cigarette lighter plug Carrying strap

$229

TRANSCEIVERS:

NATIONAL RJX 1011D	**$1920**
YAESU: FT101E (NEW STOCK — END NOVEMBER)	**$899**
FT301	**$930**
FT301D	**$1090**
FP301	**$175**
TRIO KENWOOD: TS520S	POA
TS820	POA
TS820S	POA

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- Covers MARS frequencies without modifications
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- Third order distortion down at least 30 dB

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HF3-100L2 Linear Amplifier	$215
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SX-59 RF Pre-amplifier	$84
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MT-3000A	$447
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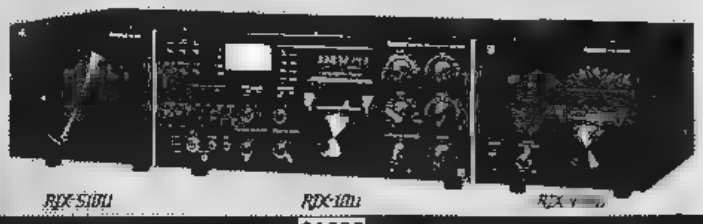

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A Unique New SSB/CW Transceiver For Amateur Communications $1990.00

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For further information and specifications write, phone or call in!

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Bigear VHF-UHF TRANSCEIVERS!

Type 1 —
2m FM SSB CW PLL SYNTHESIZED MOBILE BASE TRANSCEIVER $694

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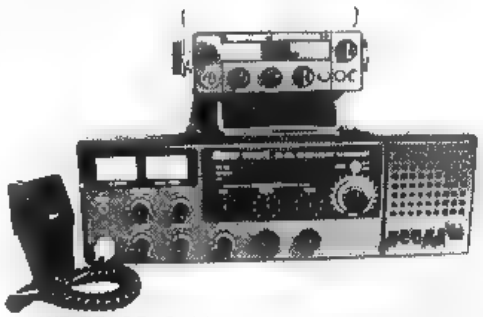
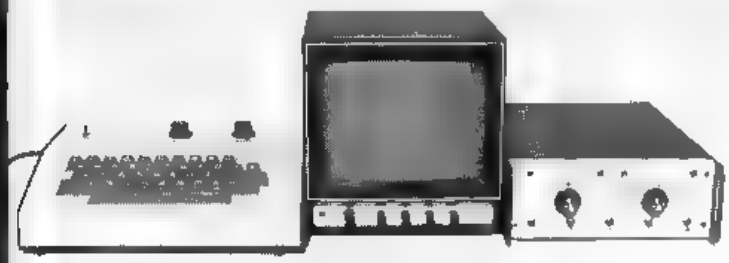
  FM 800 channels (5 kHz step)
  SSB, 400 channels (10 kHz step) plus VXO system (± 7 kHz)
  AC 117/240V, DC 13.8V, two-step power supply
  Digital display system (using a large-sized LED) provides reading up to six figures

Type 2 — **2m FM PLL SYNTHESIZED MOBILE TRANSCEIVER $375**

- 144 - 148 MHz PLL digital synthesizer system (800 channels)
- A large-sized LED, digital display system provides readings up to six figures
- Easy-operating separate and selective mechanism displayed by the frequency unit for wider operation
- Transmitting output 25W/1W two-step selector switch



WRITE OR CALL FOR FURTHER SPECS!



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NEW INFO-TECH MODEL 200! $668
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NEW INFO-TECH MODEL 300! $564
A Microprocessor controlled, stand alone, keyboard that generates Morse, RTTY and ASCII codes.

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Model 75 RTTY to Video Converter	$448
Model 150 RTTY Keyboard	$407

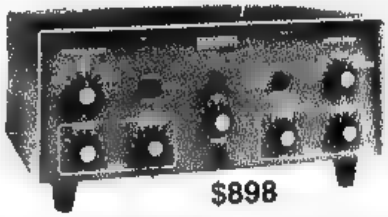
RF PREAMPLIFIERS FOR 3-30 MHz BAND:

Model SX-59 for use with transceivers.

SPECIFICATIONS
Frequency range 3.30 MHz in 3 bands, 3-7, 7-14, 14-30 MHz
Gain 20 dB nom. (at 7 MHz), front panel variable control
Attenuator — 20 dB attenuation selectable from front panel control.
Jumped 50 or 75 ohm systems. UHF connectors on rear panel

$86

Order Your ROBOT Model 400 SSTV CONVERTER NOW!!



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With the Robot 400 you just plug it into your transceiver, connect a TV monitor or your home set with the optional Robot RF adapter kit, tune to 14.230, and you're operating SSTV.

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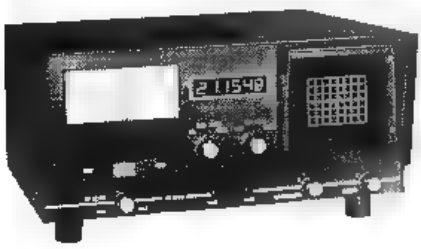

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SWR BRIDGE

The most deluxe Black Cat® accessory MONITOR SCOPE permits measuring RF output to antenna and viewing modulation patterns. **Frequency Counter** has six big LED digits, 1-50 MHz range (typical), 100 cycle readability, 50mV sensitivity. **Peak-reading Wattmeter** has 3 scales: 0-20, 0-200, 0-2000 watts. **SWR Bridge** reads standing wave ratios of 1.5, 2, and 3. Perfect for Ham base stations.

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Model 333 dummy load wattmeter — Favorite Lightweight Portable. 250W RATING — Air Cooled. Ideal field service unit for mobile 2-way radio — CB, marine, business band. Best for QRP amateur use, CB with zero to 5W full scale low power range.

Frequency Range:	DC to 300 MHz
VSWR:	Less than 1.3:1 to 230MHz
Power Range:	250 watts intermittent
Wattmeter Ranges	0-5, 0-50, 0-125, 0-250
Connector	SO-239
Size	4 in. x 7 in. x 8 in.
Shipping Weight	2 lbs

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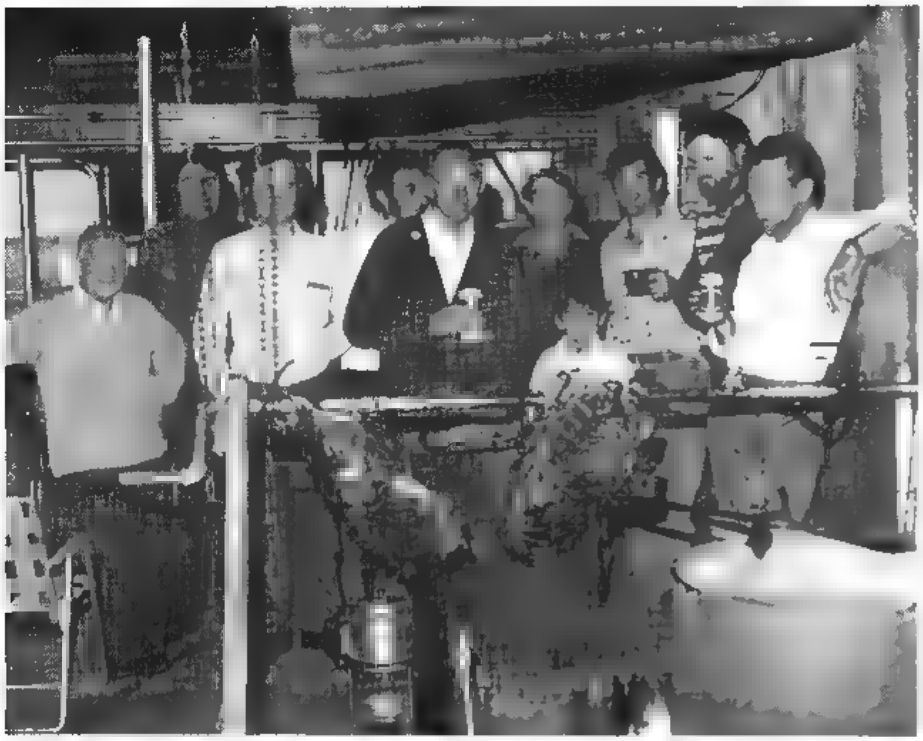
B&W DUMMY LOADS-POWER METERS
Model 374 - 1500W Oil Cooled **$199**
Model 334 - 1000W Oil Cooled **$167**

EASTERN ZONE BARBECUE

The East Gippsland Group of the Victorian Eastern Zone held a barbecue supplied by Ian VK3BLF and his XYL, Glenys, on their property at Tambo Upper. Among the 50 attending were those pictured — left to right: an SWL, Ian Pattle VK3ZIS, Warren Wright VK3AVZ, VK3 NLM, Jim Watts VK3NFQ, VK3BBB, Graeme Brown VK3ZXG, Michael McDonald VK3ZQV and Ian Foster VK3BLF (photo courtesy Gavin Kuch VK3ZNC/VK3NIC). The 100 lb. pig disappeared rather smartly as the second photo shows Graeme Brown and mine host, Ian Foster, dismantling the carcase.



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JAN. TO DEC. 1978

VHF-UHF AN EXPANDING WORLD

Eric Jamieson, VK5LP
Ferreston. 5233

AMATEUR BAND BEACONS

VK0	VKOMA, Mawson *	53.100
VK1	VK1RTA, Canberra	144.475
VK2	VK2WI, Sydney	52.450
	VK2WI, Sydney	144.010
	VK2RHR, Mittagong	144.120
VK3	VK3RTG, Vermont	144.700
VK4	VK4RTL, Townsville	52.440
	VK3RTT, Mt. Mowbullan	144.460
	VK4RBB, Brisbane	432.400
VK5	VK5VF, Mount Lofty	53.00
	VK5VF, Mount Lofty	144.800
VK6	VK6RTV, Perth	52.300
	VK6RTU, Kalgoorlie	52.350
	VK6RTW, Albany	52.960
	VK6RTW, Albany	144.600
	VK6RTV, Perth	145.000
VK7	VK7RNT, Launceston	52.400
	VK7RTX, Ulverstone	144.500
	VK7RTW, Ulverstone	432.475
VK8	VK8VF, Darwin	52.200
JA	JA2IGY, Nagoya	52.500
KG6	KG6JDX, Guam	50.110
KH6	KH6EQI, Hawaii	50.104
TI	TI2NA, Costa Rica	50.080
W	WA6JRA, Los Angeles, USA	50.061
ZL1	ZL1VHF, Auckland	145.100
	ZL1VHW, Waiketo	145.150
ZL2	ZL2VHP, Palmerston North	52.500
	ZL2VHF, Wellington	145.200
	ZL2VHP, Palmerston North	145.250
ZL3	ZL3VHF, Christchurch	145.300
ZL4	ZL4VHF, Dunedin	145.400

* Denotes re-inclusion in list.

Well, it shows it is possible to get action and confirmation. Last August I removed the VK0 beacon from listing as no confirmation existed at the time as to whether it was operating. I have now received a letter from Keith Gooley VK2BGZ of the Ionospheric Prediction Service stating the Mawson beacon is definitely operating with 80 watts output on MCW to a 3 element yagi horizontally polarised. The IPS asks for reports and should be sent to the current operator, Mr Graham Sefton, Ionospheric Prediction Service, PO Box 702, Darlinghurst NSW 2010 Graham will be returning to Sydney in February 1979. Thank you, Keith for the information, there will be many people pleased to know the beacon is still running, and hope facilities exist for two way contacts if the beacon is heard.

Advice has also been received from the NSW VHF and TV Group to the effect that the Mittagong beacon VK2RHR on 2 metres has been discontinued as the site is now to be used for a repeater.

My thanks to David VK5KK for preparing the VHF notes for November issue due to my absence on leave in Western Australia. I haven't seen what he wrote, yet know they will be interesting. For my part, I met Tony VK6BV in Kalgoorlie and spent an interesting evening with him. He has since moved to Northam, 6401, close to Perth, and his address is care of Box No 430. At Albany I met Aub VK6XY, Wally VK6WG, Bernie VK6KJ and Bob VK6BE, all of Albany, and Doug VK6OI from Kalgoorlie Talk, of course, was VHF orientated naturally, and whilst we did not come up with many new things, at least it was an interesting exchange of information, and gave me the chance to meet the guys at the other end of the 52, 144 and 432 MHz contacts I have had to Albany.

Took my FT221 and magnetic base roof mounted ¼ wave whip antenna with me, and had a number of contacts through various repeaters at different points on route. Most pleasing however was the opportunity presented on the day we left Albany to work Aub VK6XY, mobile while en route to the Stirling Range National Park, 90 km away, with contact on Channel 49 being maintained all the way! A sked was arranged whilst stationary in the Park for 1900 that night on 144.1 SSB. First call and there was Aub at S4-5 with slight QSB. Stronger signals would no doubt have resulted had Aub been able to get his horizontal beam around on to me, but the antenna had been damaged during the "big blow" just previously, so we had to be content with a tips-on contact.

Thanks, Aub, for your hospitality during the two days of my visit, and for arranging an opportunity of meet the other boys at your house. I left Albany with the news that I would be back again sometime, hopefully with a few more days to spend than were available this time.

Joe VK7JG writes enclosing a copy of a reply he sent to Electronics Australia regarding their editorial in September issue re Ch. 5A and I concur with his comments. His letter may be printed in the said publication in which case you will want to read it.

Joe goes on to say that activity in Launceston is increasing with Daniel VK7DA modifying an FL2100B for use on 6 metres. Kevin VK7ZAH now runs a 4CX350 on 2 metres, and 100 watts on 432. Joe is using a 4CX250B in grounded grid to give 150 watts output on 2 metres, and should by now be capable of using the legal limit on 6 metres to a pair of 5 over 5 yagis.

A letter is to hand from VS6FX in Hong Kong who advises working 162 JAs and 5 KH6s from beginning of May.. He uses a TS600 and a 120 watt amplifier with an 8 dB collinear vertical antenna 400 feet a.s.l. He is currently keeping an eye on 50.100 each Saturday and Sunday from 1000 to 1200Z. Thanks for writing, Klaus.

Bruce Beresford P29BB writes from Yonki, PNG, to say his QTH is in the Eastern Highlands Province of PNG, 25 km east of Kainantu, 200 km from Lae and 116 km from Goroka, and 1400 metres a.s.l. He is using a QQE06/40 linear on 6 metres to a 5 el. yagi. He has an 8 element on 2 metres and a linear on the way. A log periodic antenna for 80 to 250 MHz is used to keep an eye on TV DX.

On 10-9-78 he worked on 50.110 KA2MM, KG6JIH, KG6DX, KG6JIP, KG6JIO and JH4KAY. On 52.058 JR1MFD and 52.103 JH7HJM. The KH6EQI beacon was 579 0930 to 1100Z, with Ch. 0 TV from China as well! The band was full of JA stations but Bruce spent much time looking for VK contacts. However, following a solar flare the next night 11-9 he worked VK6ZFQ, VK6GB and VK4JH, with KH6EQI being heard all night 579, and Chinese TV again.

On 12-9 things really got moving. At 0630Z the VK4 beacon was 599. Ch. 3 from Townsville perfect copy, also Ch. 1, 5 and later Ch. 4. Ch. 3 lasted until 0807Z. VK4s were worked from Townsville to Bundeberg, plus several JAs, and KH6EQI available all night!

With such a commanding position it looks as though Bruce will be a station to keep in mind, particularly when he gets his 2 metre linear going. The North Queensland boys will be in a prime position, but later this year signals could possibly extend further south to other States. Thank you for writing, Bruce, and keep up the good work.

Bruce VK2FD sends information regarding contacts made on 2 metres recently which caused quite a stir in NSW. I quote "A rather remarkable breakthrough on 2 metres occurred during the evening of 10th September 1978, when Ian VK5IK at Eudunda, north of Adelaide, was heard loud and clear on repeater 2 at Orange.

"Bruce VK2FD Guyong, Ray VK2ZSX Sydney, Dave VK2ZDY Moree, Peter VK2TK Orange, Kim VK2ASY Orange, Warren VK2ASM Sydney, Peter VK2APP Young, Kerry VK2BXT Moree, Barry VK2ZAY Gunnedah, Bob VK1RC Canberra, Grant VK2AXB Sydney, Gordon VK2BGA Sydney, Nick VK2AOH Mittagong, Allan VK2WR Sydney, Warwick VK2ADZ Griffith and Tom VK2BTE Sydney all worked Ian via the repeater.

"VK5ZCP Andrew, south east of Adelaide, was also heard and worked by Peter VK2TK at Orange.

"At 1158Z Bruce, VK2FD at Guyong, east of Orange, worked VK5IK direct ton 146.000 MHz, good signals each way. Bruce was using an FT221R to a A147-20T up about 50 feet while Ian was on an IC22S to a 25 element collinear array."

Thanks for the news Bruce, apparently the 10th was a very outstanding night note the signals heard by P29BB above. It's pleasing to note you tried and were successful with simplex operation.

David VK5KK has passed on the following information of VK5 happenings whilst I was in WA (I'm always somewhere else when interesting things happen!) On 29-9?8 at 0903Z the KH6EQI beacon was copied at S9. The story runs like this "Steve VK3OT was heard via meteor scatter at 0725Z at 5 x 8. At 0840Z nothing audible on 50 MHz. At 0845 VK5KK heard KH6EQI 5 x 8. At 0850 it was 5 x 9 and continued until 0918Z. Faded out at 0922, came back at 0928 5 x 5 for 2 minutes. Observed by VK5KK, VK5ZZZ, VK5NY, VK5ZMO and VK5ZBL. Roger VK5NY heard the beacon at 0900 5 x 7 using a vertical dipole! VK4ZWH heard KH6EQI for 2 hours 5 x 9 20 dB.

"Little doubt the solar flare caused the good conditions, some uncertainty as to mode, possibly double hop F, extended TEP or even Es as signal dropped out just like Es. The aurora was observed at 165 degrees at VK5KK. Also the same date the band opened to JA1 and JA6 at 1220Z for 17 minutes, most signals were 5 x 9 via type 2 TEP. At 1306Z 144.1 opened to Kevin VK7ZAH 5 x ' SSB and later on 6 metres Daniel VK7DA heard. 432 MHz tried but no signals. VKOT heard on 6 metres. Aurora still going at 1430Z.

"30-9. Opened to VK4 0800 to 1100Z. 1030 to 1100 VK3 to JA signals 5 x 5, being first JA opening from VK3 for a month. Previously all other States had worked JA.

"1-10: 6 metres to VK6 0300 to 0430Z. At 1036Z JA1VK worked 5 x 5 to 5 x 9. Norrie uses FT625RD. 8-10 VK5KK to JA1TGS 5 x 1 0425 to 0440Z on CW. Total JAs worked for month between 70 and 80 ' Thanks, David.

Whilst still dealing with messages, Mark VK5AVQ in a telephone conversation has asked me to advise all those wondering why the VK5 beacons were off the air for a while, that the motor driving the keyer failed, and a new motor had to be ordered. Opportunity was taken to overhaul the beacons which had been in service for 15 years, and to change the crystal in the 2 metre beacon, as the original one had become rather unstable with rises in temperature. We hope the beacons will now be to your satisfaction.

Ross VK4RO sent a copy of the latest SMiRK Newsletter and has added that 6 metre openings at time of writing (September) had been rather sporadic in Ayr, in one day and out for five. Worked KH/KG6 and JA so far since 20-7. The SMiRK DX-pedition with JA operators to Saipan KG6RO had 240 contacts with JA/KG6 and HL9, and included only one good day for about 3 hours opening to JA.

DARWIN NEWS

Graham VK8GB continues to get amongst the DX and the following are extracts from his log which will be of interest to those keeping a watch on his exploits. "11-8. 1245Z 52.050 4D88UT. 12-8 1135 KG6JIH, 1145 KG6DX on 52.050. 1232 144.110 JH6DVD, 1245 4D88UT 52.050, 1310 JH8PLQ 52.058. 13-8. 52.050 JH6TEW KG6DX, KG6JIP, JR1AUW. 15-8. 52.050 JA2DDN JH1WHS, JA1LZK and JR1 AUW.

"17-8. On 52.050 24 contacts between 1055 and 1257Z in JA2, JE3, JH8, JF3, JJ1, JI1, JE1, JE1, JR2, JH4, JG1, JR1, JA1, JA9, JF1 and KG6 call areas. 18-8 1215 52.050 KG6JIH 18-8. 1200 52.050 KG6DX 20-8 1130 to 1313Z 11 contacts to JF3, JR1, JA2, JA9, JA5, JE1, JH1, JJ1 areas. 25-8. 1114 to 1155Z 52.050 JA9SSW, KG6IL, KG6JIH and JH6TEW 26-8 1215 to 1235Z 52.050 JA5FBX, JA2DDN, JA2BZY and JA6SBW 28-8 1055 to 1242Z 29 contacts in JA3, JR4, JH4, JI1, JF3, JG1, JF1, KG6, JE1, JH1, JJ1, JA2, JE3, JR1, JK1, JE2, JA4, JH6 areas.

"30-8. 1145 to 1258Z 20 contacts 52.050, JR1, JH6, JI1, JH1, JR3, JE1, JA1, JJ1, JR2, JG3, JE2, JH3, JF3, JA8, JA4 areas. 31-8. 1106 to 1208Z 52.050 12 contacts JE2, JR3 KG6, JA6, JH4, JH1, JF3 and JA2 3-9 1100 to 1209Z 9 contacts 52.050 JA3, JH2, JR6, JR1, KG6. 4-9 1143 to 1215Z JA6SBW, JA5EBY, JA4MBM and JA4ZPN.

"7-9: 1105 to 1350Z 36 contacts 52.050 JA4 JH6, JR1, JA1, JI1, JF3, JA2, JR8, JH4, JJ1, JE1, JA7, JH5, JA5, JK1, JJ1, JH2, JH3, JR3, JA4, and on 144.120 at 1144Z JH6TEW 9-9 1110 to 1300Z 16 contacts 52.050 to JA4, JH4, JH7, JH2, JE1, JE3, JA7, JH8, JA9, JK1, JA8, JK1, JH6, JA2, JA8 and JF3. This looks like a good day

with only JA5 and JA0 areas missing. 10-9: 1140 to 1333 30 contacts on 52.050 VK8ZCV, JR1, JJ1, JF1, KG6, JA7, JH0, JA5, JH4, JH6, JK1, JH7, JE2, JA3, JR6, JG1, JE3, JF3, JH2, JH1, JA1. 11-9 1043 to 1238 16 contacts 52.050 JR6, JA5, JE3, JH6, JA5, JA9, JA1, JR2, JH4, JA0, JA7, KG6, JF3, P29BB and KG6RO on Saipan. On 144.110, 1118 to 1135Z JH4XTN, JA6ABG, JR6FEY, JR4AAW, JH4RSP and JH6TEW.

"12-9: 1140 JA4HI and JR6AGZ both on 144.110. 13-9: 1300Z 52.050 JA2HMO. 14-9: 1104 to 1248Z 52.050 KG6, JH6, JA2, JK1, JR2, JA1, JF3, JA3, JH1, JE2 for 13 contacts. On 144.110 1118 JH6TEW, 1123 JH4JPO. 15-9 1055 to 1255Z 19 contacts 52.050 KG6, JH6, JH8, JA2, HL8WI, JH2, JE2, JR3, JF3, JJ1, JA3, JH4, JE3. On 144.110 1102 to 1119Z JH6TEW, JR6KUZ, JA6AFU and JH6CTY. 16-9: 1057 to 1217Z 18 contacts JA2, JH4, JH5, JF3, JH2, JE3, JE1, JR2, JG3, JA4, JA3/5, JA8, JH7, JA9 JH6, 1105 to 1138Z 144.110 JH4JPO, 144.291 JA6VUT, JR6AWT, JR6HRE, JR6ADD, 144.306 JH6TGD, JR6NNO, 144.150 JR6BEN, JA6QFH 17-9: 1140 to 1159 52.050 VK8ZCU, JH4EVU, JA2DDN, JH6TEW 144.110 JA6LDD at 1202Z 18-9: 1050 144.110 JA6QFH 1102 JH4JPO, 1106 144.170 JH6LRL. 1117 to 1217Z, 52.050 23 contacts JF3, JR7, JA6, JA4, JR6, JR2, JG1, JE3, JA5, JE6, JA8, JA0, JE2, JH2, JF3, JH6, KG6, P29BB 19-9: 1256 to 1346Z 8 contacts 52.050, JH3, JH1, JK1, JF3, JE1, JF1, JH1 and JG1.

"As you can see, six metres is very good and two metres has been open to JA every day since 7-9 although I haven't worked stations every day. So far JAs have worked all VK States except VK7 on a number of occasions, some openings evening TEP extended by Es.

"KG6RO (Saipan) is on six regularly. The SMIRK DX-pedition left their gear behind and the lincesee Ryo runs a keyer on 50.110 on an extended basis. His beam is fixed on JA and he has only a little English understanding.

"FO8DR Rene in Tahiti is back on air. He worked JA1 on 18-9 0430Z on 50.110, and runs a keyer on an attended basis on that frequency. 5B4CY is a beacon on Cyprus on 50.600. They have not got any permission to have any six metre contacts though (HL9WI info.). ZB2VHF is a beacon on 50.003 on Gibraltar. ZS6PW beacon is on 50.030. ZS6HVB beacon is on 50.100. These three items from SMIRK newsletter.

"Following is a summary of known active stations on six metres in the Pacific area, and all should be workable from Australia. I have 12 countries worked and 10 confirmed. HL9WI works WA6JRA on 28.525 2200 to 2300Z on Saturdays and Sundays.

"1. JA.
2. JD1 Minami Torishima.
3. JD1 Ogasawara.
4. KG6 Guam.
5. KG6RO Saipan.
6. KC6ST Eastern Caroline Is.
7. KH6 Hawaii.
8. VK9ZM Willis Island.
9. YJ6KM New Hebrides.
10. 3D2CM Fiji.
11. KB9PNT/DU2 WB6LBJ/DU6 Philippines.
12. P29.
13. VS6FX Hong Kong.
14. CR9AJ Macao.
15. ZL.
16. VK9NI Norfolk Island (?)
17. FK8AB New Caledonia.
18. FO8DR Tahiti.

So there you have the good news. Add to this the 48 MHz peak shown in the IPS Charts for October compared with 34 MHz last year and that means six metre DX.

Bill VK9ZM on Willis Island will be leaving about 6-12-78, but it is probable you will have worked him prior to these notes. He knows to listen on 52.050 and 144.110, runs 25 watts to a 5 element yagi on six and 100 watts to a pair of vertical yagis on two metres, plus a 10 element yagi. Apparently he has already had contacts with amateurs in Townsville and Ingham on FM and SSB. Before leaving it is anticipated he will be operational on 432 MHz as well. A good contact looming up- Graham VK6GB in a late note says Bill VK9ZM worked KG6JIH on 20-9 and 21-9 for first 6 metre contact, so that should set Bill into the right mood!

December, of course, normally sees the start of the Ross Hull Contest, and I would expect it to be on again this year. However it is to be hoped a more equitable set of rules can be used than has been the case for the past three years, rules which gave no incentive to work more than one band. There seems little doubt the contest helps to bring stations on the air but it is difficult to obtain a reasonable return of logs for the Contest Manager. Some operators are probably scared off by the huge scores a few stations make, but awards can be incorporated in the contest for workings by stations in other ways in addition to highest score etc. Above all, let's try and keep the contest going, and please send in a log, several hundred stations annually enter the contest and give numbers, but only a handful enter logs.

December is also Christmas month, and I would like to pass on the compliments of the season to everyone, and may we hope for a happier year in 1979, and at least some decent treatment from WARC 79. May another New Year wish be that we obtain the use of 50 to 52 MHz. If you have any comments in regard to my article on the six metre band, just published, please write.

I now enter my tenth year as your scribe for this section, I hope I have been able to give you something worth reading from time to time. The task is not easy, but thanks to the support I receive from my various letter writers the task is that much easier. Again my special thanks to Graham VK6GB for the large amount of time he spends sending me such a complete cover of information from Darwin.

Closing with the thought for the month "Too many people work themselves into a father with soft-soap."

73, The Voice in the Hills. ■

FROM THE OVERSEAS ADS.

An occasional AR feature

Palomar PTR130K — New miniature HF transceiver. Digital readout with push button frequency selection and tuning. Covers all HF bands and has a synthesiser with 100 Hertz steps.

One major Japanese manufacturer, NEC, has an interesting line of gear which is little seen in Australia. They have a digital readout transceiver, the CQ110, which has been on limited sale. As a companion unit they have the CQ301 linear amplifier, which covers 160-10 metres and uses a pair of 3-500Z grounded grid triodes.

Yaesu have the FTV901, a three band 50, 144, 432 MHz transverter, as a new accessory for their FT901 transceiver.

Datong in the USA have released their FL1 frequency agile audio filter. This filter can scan the audio spectrum and then lock on to a heterodyne and either peak or reject it. ■

EDITOR'S HEADACHE

EDITOR'S HEADACHE
Getting out a magazine is no picnic.
If we print jokes, people say we are silly.
If we don't, they say we are too serious.
If we don't print contributions, we don't appreciate genius, and if we do print them, the magazine is filled with junk.
If we clip things from other magazines, we are too lazy to write them ourselves.
If we don't, we are stuck with our own [illegible].
Now, like as not, some guys will say we swiped this from some magazine.
That's right, . . . we did."

*** From a well-known journal, which did not mention the source, either.** ■

AROUND THE TRADE

Hewlett-Packard have announced the production of a new Gallium-Arsenide FET, the HFET-1102 for use in the range 1-12 GHz. A minimum gain of 11 dB and a maximum noise figure of 1.7 dB are specified at 4 GHz. The company has also announced a new bipolar transistor, the HXTR-5102, capable of more than 0.5 watt output at 4 GHz with 0.1 watt input. It would be suitable for SSB transmitter service. ■

SATELLITE AND RF TELEMETRY RECEIVERS

Microdyne Corporation, represented in Papua-New Guinea, New Zealand and Australia by Scalar Distributors Pty Ltd., manufactures receivers and related equipment for RF telemetry, meteorological and communications satellites, aerospace research and satellite television use throughout the world.

The main product line consists of receivers, diversity combiners, precision signal generators and predetection tape recording converters. Microdyne also markets complete television satellite earth terminal systems and receivers.

The main receiver is the 1100 series, having the capability of achieving great versatility through totally co-ordinated modular design.

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Due to the wide variety of plug-in modules available, it is likely that any new satellite or other RF telemetry receiver configuration not already listed can be readily accommodated at minimum cost including FDM and single channel per carrier satellite communications receivers.

Further information may be obtained from Scalar Distributors Pty Ltd., PO Box 48, Kilsyth, Victoria 3137. ■

SWD Power Scope (see AR, November)

QSP

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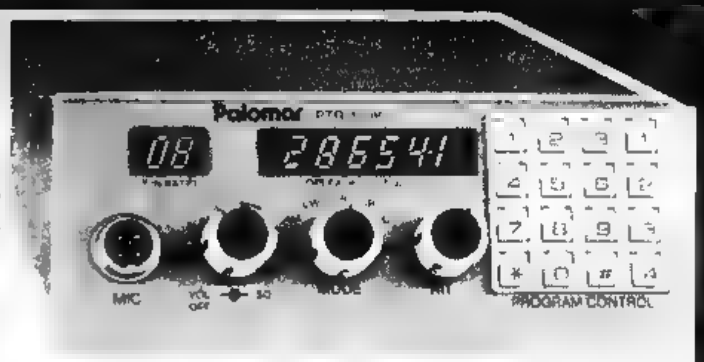

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- Watch this space next month for price

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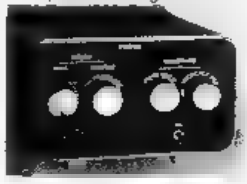

$129

Positioning of simultaneous notch filter is continuously variable from 300 to 1400 Hz with FINE and COARSE position controls. Notch depth is fixed at nominally 30 dB. Notch tuning is independent of bandpass tuning and may be completely disabled
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Following the design philosophy pioneered in the FT-901DM HF transceiver, an available option for the FT-225RD is a memory unit which allows storage and recall of any frequency within the range of the transceiver This circuitry allows instant, programmable QSY to a favorite repeater or calling frequency with only a flick of a switch

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S.A.	FARMERS RADIO PTY. LTD., 20 Stanley St., Plympton 5038	Ph. 293 2155
TAS.	G. T. ELECTRONICS, 131 Westbury Rd., South Launceston 7249	Ph. 44 4773
	PRINS RADIO, 123 Argyle Street, Hobart 7000	Ph. 34 6912
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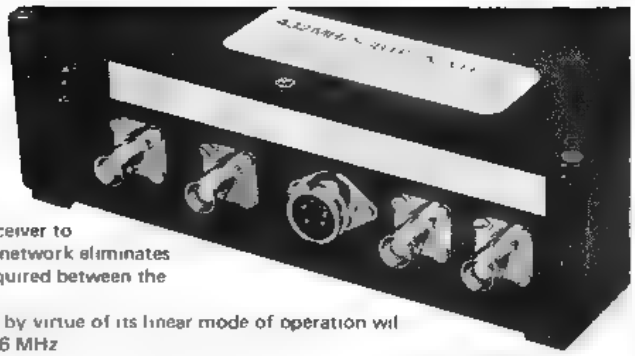
	Amateur & Novice Comm Supplies, W. E. BRODIE, 23 Dalrey Street, Seven Hills 2147	Ph. 624 2681
	DIGITRONICS, 186 Parry St., Newcastle West 2302	Ph. 69 2040
	RIVERCOM, Sid Ward, 9 Copland St., Wagga Wagga 2650	Ph. 21 2125
QLD.	H. C. BARLOW, 92 Charles St., Aitkenvale, Townsville 4814	Ph. 79 6179
	MITCHELL RADIO CO., 59 Alleen Rd., Alllson 4010	Ph. 57 6630
A.C.T.	QUICKTRONIC, Jim Bland, Shop 11, Ainree Cnl., Phillip 2606	Ph. 81 2824 82 2864

Transverter Model MMT 432/144'S'



UTILIZING an IF of 144MHz * 10 WATTS DRIVE of ½ WATT * VOX OPERATED, TWO SELECTABLE RANGES
FEATURES EXTENDED COVERAGE FOR OSCAR 8

This 432 solid state linear transverter is intended for use with a 144 MHz transceiver to produce a high reliability transceive capability. A 10 watt load and RF sensing network eliminates the need for any ancillary circuitry. A single coaxial connection is all that is required between the transverter and the associated 144 MHz transceiver.

A wide range of applications is offered by the MMT432/114 transverter, which by virtue of its linear mode of operation will enable 144 MHz SSB, FM, AM or CW equipment to be used at 432 MHz to 436 MHz

Simply connect direct to your 2 metre rig, 12 volt supply, fit 70 cm antenna for instant SSB, FM, AM, CW operation, coverage 432-434/434-436 in two ranges.

FEATURES High quality double-sided glass fibre printed board * Highly stable zener controlled oscillator stages * P I N diode aerial changeover relay with less than 0.2 dB through loss * Extremely low noise receive converter, typical 3 dB * Separate receive converter output gives independent receiver facility * Built in Automatic RF VOX with override facility * Built in 10 watt 144 MHz termination, selectable attenuator for ½ watt * Use of the latest state of the art Power Amplifier transistors provide reliable 10 watts continuous output

MODEL MMT432/144 'S' Price $295

Transverter Model MMT 432/28'S'

FEATURES EXTENDED COVERAGE FOR OSCAR 8

Second Crystal Oscillator gives two ranges Low 432 - 434 MHz – High 434 – 436 MHz Programming available to either Transmit, Receive both Low, both High, or a mixture of the two. Adjustable Drive Level is now provided by an input potentiometer Optional RF VOX. Power Output 10 watts minimum * 28 MHz IF * Drive 1 mW to 500 mW * Aerial Changeover by PIN diode switch * Modern Microstrip Techniques * Power requirements 12 volt nominal at 150 mA 2.5 amp. peak * Case size 187 x 120 x 53 cm * Spare 432 input socket.

MODEL MMT 432/28 'S' Price $245 **MODEL MMT 144/28 Price. $185**

100 Watt 432MHz Linear Power Amplifier

MML 432/100
Price $395

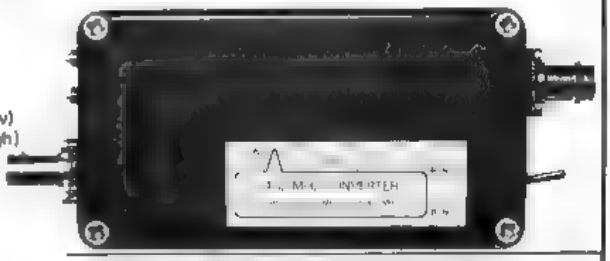
- 100 watts minimum output 10dB minimum gain
- Fully protected against poor load VSWR, overheating and excessive or Reverse Rails
- Equiped with RF VOX and manual override.
- Frequency Bandwidth 435 MHz- 15 MHz @ - 1 dB.
- 10 watts nominal input for 100 watts output.

DUAL RANGE 432 – 434 MHz & 434 – 436 MHz CONVERTER
TYPE: MMC 432/28 'S' & MMC 432/144 'S' **Price: $67.00**

FEATURES:
- Extra Range (434-436 MHz) For Satellite Reception
- Ultra Low-Noise First RF Amplifier Stage
- Highly Stable Zener Diode Controlled Crystal Oscillator and Multiplier Stages

SPECIFICATIONS

Input frequency ranges:	432-434 MHz (low) 434-436 MHz (high)
I.F. output frequency:	28-30 MHz or 144.146 MHz
Typical gain:	30dB
Noise figure:	3dB Maximum
D.C. Power requirements:	11-13.8 volts 12.5V nominal
Current consumption:	50 mA Maximum



BNC CONNECTORS – Excellent quality, fully imported from U.K. – U.S. Mil. No. UG88E/U. **Price: $1.35 each.**

NEW READY-TO-OPERATE MODULES AVAILABLE IN THE SALES PROGRAM OF VHF COMMUNICATIONS.

All modules are enclosed in black cast-aluminium cases of 13cm by 6cm by 13cm and are fitted with BNC connectors. Input and output impedance is 50 ohms. Completely professional technology, manufacture, and alignment. Extremely suitable for operation via sattelite or for normal VHF/UHF communications.

6 METRE MOSFET CONVERTER
Featuring 24 MHz local oscillator output for transverter use:

Input frequency:	52-54 MHz
I.F. Output Frequency.	20-30 MHz
Typical Gain	30 dB
Noise Figure	2.5 dB
Typical Image rejection.	65 dB
Crystal Oscillator Frequency	24 MHz

Power requirements. 12 volt ± 25% at 35 mA.
MODEL MMC52/28LO Price. $49.00
CONVERTERS PACK & POST $2.00

1296 MHz CONVERTER
Mircostripline, Schottky diode mixer.
IF 28-30 MHz or 144-146 MHz
Noise figure: t.p. 8.5 dB
Overall gain 25 dB
Power Requirements 12 volts DC ± 25% at 50 mA.
Price: $65.00
500 MHz COUNTER Model MMC050/500
Price $175

144 MHz MOSFET CONVERTER
Noise figure typ. 2.8 dB.
Overall gain typ. 30 dB.
IF. 28-30 MHz. 9-15 V 20 mA.
Price $45.00
VARACTOR TRIPLER 432/1296
Max. input at 432 MHz. 24 W (FM, CW) - 12 W (AM)
Max output at 1296 MHz 14 W
Price: $74.00

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WICEN

Ron Henderson VK1RH
Federal WICEN Co-ordinator,
53 Hannaford St., Page ACT 2614
Ph. (062) 54 2959, A.H.

In this December issue of AR I believe it is time to review the aims of WICEN.

BACKGROUND
The Wireless Institute Civil Emergency Network, or WICEN for short, has its origins in the various State civil emergency networks set up by amateurs after World War II. In the late fifties and early sixties amateur communications were superior, relatively speaking, to those of the civil agencies and much good work was done in flood and bushfire disaster situations. In the early seventies, with improved civilian communications, including the extensive use of VHF FM and STD the demands for WICEN fell and many authorities saw no role for the amateur. However, happenings over the recent years have disproved this view and shown the organised amateur communications still have a place in emergency plans.

THE CHALLENGE
But what must we as amateurs and active WICEN members do to meet this challenge?

We must be trained and organised for our role, for the mission of WICEN is to provide a pool of trained licensed operators with equipment, available for deployment to aid communications in an emergency.

To achieve this state of preparedness we must,

(a) register with our State, regional or district WICEN committee to indicate our availability,

(b) attend WICEN training courses to gain an understanding of working with civilian agencies, in particular SES,

(c) attend WICEN exercises regularly to keep our knowledge and skills up to date.

Your WICEN committees will maintain liaison with civil authorities and endeavour to conduct training courses and exercises, often in conjunction with civic activities in order to make use of the live traffic situations and gain valuable public exposure of our capabilities.

RESERVATIONS
A final word of warning, directed primarily to WICEN committees, take care in offering communications to "everyone and his friend". It's not within the regulations and is taxing on resources. Don't forget the SES communications sections are always on the lookout for good men if you are so inclined. Remember the golden rule of Amateur Radio, "The Amateur is Balanced . . . Radio is his hobby. He never allows it to interfere with any of the duties he owes to his home, his job, his school, or his community" (ARRL Handbook.)

WICEN is but one aspect of amateur radio, together with HF DX, Oscar, RTTY, SSTV, Repeaters, VHF DX, and novice classes to name some of the contending interests before you even start on the garden!

Next issue, some thoughts on WICEN training courses. ■

AWARDS COLUMN

Brian Austin, VK5CA
P.O. Box 7A, Crafers SA, 5152

A merry Christmas and a happy New Year to you all from the Manager and his staff (Marlene). May the New Year bring you lots of DX and, even more important, QSL cards.

Early in the New Year I will be publishing a full list of members of the DXCC together with their scores. However, I would like to welcome the first Novice licensee to make the grade, Len Poynter, VK3NAC. Congratulations, OM.

DARC DX AWARDS continued:

2. WAE

2.1. WAE stands for "Worked All Europe", a certificate awarded to amateur radio stations for contacts with almost all European countries and islands on different amateur bands. The WAE is also available to SWLs. The rules apply accordingly.

2.2. The award is issued in three classes. WAE III, WAE II, and WAE I. The classes are based on the number of European countries worked and a score of country points added up from the different bands (cf. 2.3.).

Applicants for the basic WAE III have to submit QSL cards proving two way contacts with at least 40 different countries of the "European Countries List". At the same time the cards must prove a minimum of 100 country points.

WAE II requires 50 countries with a total of at least 150 points. For WAE I 55 countries and 175 points are needed.

After receiving the basic award only the necessary additional confirmations are required for a higher class.

2.3. Each European country counts one country point on each of the six HF-bands (1.8 MHz, 3.5 MHz, 14 MHz, 21 MHz, 28 MHz). Only four bands per country, however, are eligible for the point score. Five points per country can be achieved by working the same station on six bands. Two additional points per country can be obtained by a contact on one of the VHF/UHF bands. Stations outside Europe may claim 2 points for each European country on 1.8 MHz and 3.5 MHz.

2.4. The WAE is issued in two divisions

2.4.1. Exclusively telegraphy, i.e. two way CW contacts.

2.4.2. Exclusively telephony, i.e. two way AM/FM/SSB contacts.

2.5. Holders of WAE I get a special WAE badge.

3. EU-DX-D

3.1. The EU-DX-D is an award that may be claimed annually. First year of issue is 1964.

3.2. The EU-DX-D is issued in the following classes. Telegraphy - Telephony (AM/FM/SSB) - Mixed Modes. For the "mixed" class at least 30 per cent of the contacts must be made in a dif-

3.3. The basic idea of the award is a proportional combination of European and non-European contacts worked in the course of one calendar year.

3.3.1. A minimum of 50 points is required for the EU-DX-D. 20 points must be obtained by contacts with European countries and 30 points by contacts with countries outside Europe. All these contacts have to be made within one calendar year.

3.3.2. All amateur bands (HF and VHF/UHF) may be used. Each different country counts one point (on 1.8 MHz and 3.5 MHz two points). A country can only be counted once regardless of the band(s) used. The countries are determined by the "European Countries List" and ARRL's "DXCC Countries List".

3.3.3. Stickers are available for each additional block of four European plus six non-European countries within the same calendar year.

3.4. The EU-DX-D may be claimed every year anew. Each year's score may be added to obtain the EU-DX-D 500 and EU-DX-D 1000. The DARC issues a seal of merit for 500 points and a trophy for 1000 points. There is no limit as to the number of years.

Address
DARC DX-AWARDS
P.O. Box 262
D-895 Kaufbeuren
Germany (FRG) ■

CONTESTS

Wally Watkins VK2ZNW/NCU
Box 1065, Orange 2800

CONTEST CALENDAR

2/3	ARRL 160 METRE CONTEST
9/10	ARRL 10 METRE CONTEST
16/Jan7	ROSS HULL VHF/UHF MEMORIAL CONTEST
January	
27/28	THE 1979 FRENCH CONTEST CW JOHN MOYLE MEMORIAL FIELD DAY.

THE 1979 FRENCH CONTEST
CW January 27th 0000 UTC to 28th 2400 UTC.
Codes: for all stations, RST and the No. of the QSO.

Traffic: only with francophones countries —
— 95 French departments (two figures).
— and DA1,2 stn/FFA (F forces in DL)
— all DUF countries
— 9 Belgian provinces (two letters)
— and DA2 stn/FBA (Belgian forces in DL)
— 23 Cantons of Switzerland (two letters)
— all other francophones countries — LX — 4U — OD — 3B — 9Q — 9U — HH — VE2.
Points: for each QSO in the same continent 3; with another continent 10.
Multipliers: one point, per band, for each unit above.
Final scoring: the sum of all points for QSO multiplied by the sum of all points multipliers.
Logs: must be sent, with recapitulative sheet (all multipliers list per band, for checking), to — REF French Contest aq. Trudaine 2 75009 Paris.

The sole 1978 contestant from Australia was VK4AK (A1).

THE WEST AUSTRALIAN 150TH YEAR CELEBRATION CONTEST

CONDITIONS
The aim of the contest is for amateurs in all continents to contact amateurs in Western Australia (VK6) on all bands using all modes, this being to commemorate the 150th year celebration of the foundation of Western Australia.

The three highest scores from each continent for mixed and individual modes will receive a commemoration certificate. This contest is also open to SWLs.

For VK amateurs and SWLs the three highest scores from each State will be eligible for a certificate while VK6 participants who have more than 100 out of State QSOs will get an award.

RULES

1. Duration:
The contest will commence at 1600Z on 31st December, 1978 and end at 1600Z on 31st December 1979.

All authorised amateur bands may be used between 1.8 MHz to 28 MHz using any of the modes appropriate to the regulations applying to the entrant. Operators are encouraged to operate both phone and CW.

2. Scoring:
One contact in each mode is allowed in each band every day with the same station, for which the following scores and multipliers will apply.
CW — 5 points per contact
Phone — 3 points per contact
RTTY — 6 points per contact
Multipliers: One point per band used, provided that 30 QSOs are obtained on that band, excepting for 1.8 and 3.5 MHz, where 1 QSO will count.
Final Score — Total Points x Total Multipliers.

3. Logs:
Contest logs to be set out as shown below and bear a front cover sheet bearing the following.

Call: Claimed Score.
Address: Sig.:

Date	Time	Call	Band	Mode	RST Out	RST In	Points Scored

■

1978 VHF MID-SUMMER FIELD DAY CONTEST

The NSW VHF and TV Group is conducting the annual Mid-Summer Field Day Contest over the weekend 9-10th December.

Starts:
1200 Saturday 9th December (EASST)

Finishes:
1200 Sunday 10th December.

RULES

1. All amateur bands 52 MHz and above may be used.
2. A station may be worked once per band per clock hour.
3. Minimum scoring distance is 1 km.

4 Scoring is only permitted on a direct contact or via OSCAR. No HF, crossband or repeaters allowed for scoring.
5. Serial numbers, callsigns, band, time, mode and location of each station worked must be recorded in your station log.

SECTIONS
1 Field Station multi-operator
2 Field Station single operator
3. Mobile Station.
4 Home Station

In the case of a single operator field station, only one person is permitted to operate the station, but unlimited moral support is allowed

Entries may be submitted for the best six consecutive clock hours and/or the best overall score in each of the above sections.

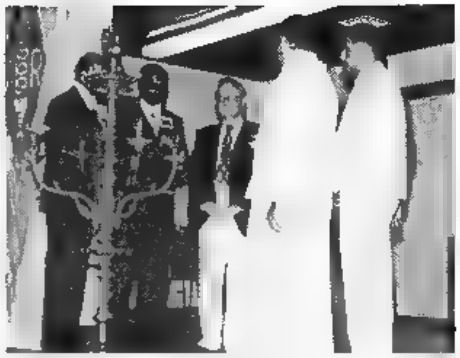
SCORING

	6m	2FM	2Tone	70cm	5/6
1-50km	3	1	3	4	10
51-100	6	2	6	10	50
101-150	15	5	15	30	100
151-300	30	30	30	50	200
301-500	75	45	45	100	500
501-800	80	75	75	200	600
801-1200	15	105	105	400	700
1200-2000	30	225	225	500	800
2001+	75	375	375	600	1000

1200	2400	3400	5700	10G	21GHz
20	40	70	100	140	200
100	150	200	300	500	1000
200	400	800	1600	3200	6400
400	800	1600	3200	6400	21600
1000	2000	4000	8000	16k	32k
1200	2400	4800	9600	20k	40k
1400	2800	5600	11k	22k	44k
1600	3200	6400	12k	24k	48k
2000	4000	8000	16k	32k	64k

ENTRIES must give the callsign, number of contacts and points claimed, for each station worked (entries should show points claimed for each band as well as the total points for each station worked). It is not necessary to submit a complete log extract. Attach a cover sheet showing your callsign, location and points claimed in each section entered

Entries must reach the Secretary, VHF and TV Group, WIA, 14 Atchison Street, Crows Nest, NSW, 2065, by Friday, 9th February, 1979.
OSCAR: 2-10 VK or ZL 20 pts., other 50 pts.
70cm modes VK or ZL 50 pts., other 100 pts.
NOTE Laser beams, spotlights, nuclear radiation, etc. score as for 21 GHz. Carrier pigeons may be used to set up contacts but not for scoring. (Fire restrictions preclude the use of smoke signals in this contest). ■



The ceremony of the lighting of the oil lamp, by the Minister of State

Arrival of the Minister of State to open the training course. Left to Right: John Amaratunga 4S7JA —President RSSL, Gerd Schnabel DJ7GS — DARC, Mr. A. R. M. Jayawardene — P.M. Gen. and Dir. Gen. Telecomm., B. D. Rampala 4S7BR, The Hon. A. De Alwis, Min. of State, D. Fernando 4S7BC, Z. Wijes Uriya 4S7ZW.

INTERNATIONAL NEWS

Recently elected as the 102nd, 103rd and 104th members of the IARU were the amateur radio societies of Haiti British Virgin Islands and Antigua.

It is most pleasing to observe that Amateur Radio magazine has received mentions in several recent editions of the prestigious Telecommunication Journal of the ITU under the heading "Review of Reviews" covering publications, in many languages, received by the ITU.

The following press statement received from IARU R3 Secretary illustrates the international co-operation between amateur radio societies as a growing force. The WIA contributed $250 to this particular project

"A carefully prepared training project of the International Amateur Radio Union — in close cooperation with the Deutscher Amateur-Radio-Club e.V. and other national amateur radio clubs will soon come true.

On September 30th, 1978, a team of 6 trainers from the Federal Republic of West Germany will go out to Colombo, Sri Lanka, to carry out a three weeks comprehensive technical training course for 38 students from Sri Lanka who have been prepared for the lectures for the past eight months and who have already successfully passed interim tests

The subject of the training course is electronics and amateur radio and the target of the training is to sit for the postmaster general's examination immediately after the end of the training.

The Government of Sri Lanka was kind enough to make available for this course the Sri Lanka Foundation Institute in Colombo where trainers and students will be accommodated during the time of the training and where suitable modern training rooms may be used The expenses for the air tickets for the trainers will be absorbed by the International Amateur Radio Union Headquarters IARU while the daily allowances will be paid by Deutscher Amateur-Radio-Club e.V in West Germany Contributions were also made by the IARU Region 3, and by German manufacturers of electronic equipment such as the Siemens AG.

The Federal German Government will donate the Radio Society with a complete amateur radio station complete with a modern antenna and this station will be handed over to the Sri Lanka radio amateurs by the ambassador of the Federal Republic of Germany, the Hon. Dr Dr. Wockel, during the official opening of the training course.

Radio amateurs world-wide are observing this pilot course with greatest interest as it is the first time in the history of international amateur radio that such a project will materialise If successful, it will be a useful way for the training of interested young people of developing countries to gain basic knowledge in electronics and to join the about 800 000 radio amateurs all over the globe in world-wide friendship and mutual understanding

Parallel to this model course the American Amateur Radio League ARRL has developed a low-price shortwave receiver in kitform which can be easily assembled and which will be available for purchase in a few months time. This brand new receiver will enable technically interested future radio amateurs to take part in the world-wide radio contacts of the radio amateurs

The latest news about the Sri Lanka project is that Japanese Amateur Radio Club JARL has presented the Radio Society of Sri Lanka with yet another shortwave transceiver for their national amateur radio station. This will mean in practice that the participants of the course will be able to communicate immediately once they have successfully passed their examination with the postmaster general of Sri Lanka."

TWO FURTHER PRESS RELEASES ARE REPRODUCED BELOW:

"The first pilot training course on electronics and amateur radio ever known of in the history of international amateur radio was started in Colombo, Republic of Sri Lanka, on October 1st, 1978.

Sponsored by the governments of Sri Lanka and the Federal Republic of Germany, by the International amateur radio union, by Deutscher Amateur-Radio-Club of West Germany and the International Divisions of several West German firms such as Siemens the official opening ceremony for the training course was held on the evening of October 1st, 1978 in the Sri Lanka Foundation Institute which is the host of the pilot project on electronics and amateur radio.

Present at the opening ceremony were the Minister of State of the Republic of Sri Lanka, the Hon. Anandatissa de Alwis, M.P., Mr A. R. M. Jayawardene, Postmaster General and Director General Telecommunications, Dr G Heisch, Charge d'Affaire of the embassy of the Federal Republic of Germany, Mr John E. Amaratunga, President of the Radio Society of Sri Lanka, and Mr. Gerd Schnabel, in charge of the team of trainers from the Federal Republic of Germany Present was also Dr. D. D. J. Nanayakkara, Secretary to the Radio Society of Sri Lanka.

In his address to the audience of about 400 guests, the Minister of State emphasised the importance of skilled technical training for applicants from developing countries and he continued that amateur radio — in his opinion — was a good means to train young men in the basics of electronics which would not only result in a good reserve of skilled men in the countries concerned but would also inspire further training on local level by the participants who had taken the course The Minister of State continued that he would offer any possible help to the Radio Society of Sri Lanka and he offered a home for the club-owned shortwave station which was donated by the West German Government

The Postmaster General and Director General Communications stressed in his speech that training courses like this on a more or less private basis were really worth to be backed up by all parties concerned and he continued that the Government of Sri Lanka would offer all possible assistance for amateur radio on the forthcoming WARC 1979 and would — this was a promise — definitely vote for keeping or even extending international amateur radio frequencies.

The Charge d'Affairs of the Embassy of the Federal Republic of Germany underlined the importance of direct initiatives for the training of young people in developing countries He said it was the first time that the West German Government took part financially in such an activity inspired by private organisations but as he felt this to be a good and important matter he was pleased to donate to the Radio Society of Sri Lanka a most modern shortwave amateur radio station which would enable the participants of the course to go into the air immediately after they had successfully passed their examination with Sri Lanka postal authorities.

Mr Gerd Schnabel, representative of the International Radio Union and the Deutscher Amateur-Radio-Club during the pilot project in Colombo. Sri Lanka carried out in his speech that the International amateur radio union would always be

The Minister of Education of the Republic of Sri Lanka watches a QSO which Hans 4S7VZ (DJ0VZ) is having with an Australian AR station in WA. The Irish born operator was thrilled to be able to have a few words with a member of the Sri Lanka Government.

prepared to offer assistance to local associations whenever needed and he pointed out that a good reserve of skilled men would be made available by amateur radio on local leva and that best results could be achieved with cheapest means. He continued that it was no secret that even NASA frankly admitted that staff requirements for the NASA organisation could not be met so easily if there was not a permanent supply of highly skilled technicians who usually received their first training on electronics through the American Amateur Radio League, the American amateur radio organisation. He further said that any government was well advised if it would make use of the nearly unlimited possibilities of amateur radio which does not only create international friendship without looking at race, colour, or political opinion, but would care for international understanding with more than 100,000,000 amateur radio stations all over the world."

'On Saturday, October 7th, 1978, the Minister of Education, Nissanka Wijeratne, visited the training course for electronics and amateur radio, held at the Sri Lanka Foundation Institute in Colombo by eight trainers of the IARU/DARC.

In the course of the visit the Minister of Education expressed his satisfaction that Sri Lanka had been chosen as the first place to carry out such a training course and he assured the audience that amateur radio will have his full support in all schools and universities of the country. He authorised the Radio Society of Sri Lanka to visit schools and universities to give speeches on amateur radio and the Minister added that he will sponsor local school and university clubs under the Radio Society of Sri Lanka and that he would be prepared to raise certain funds from the Ministry of Education to enable such clubs to set up their own amateur radio stations once one or more of the members have passed through the PMG's examination.

This is no doubt a considerable breakthrough for amateur radio in Sri Lanka and after successful completion of the course performed by trainers of IARU/DARC at the moment sufficient trainers will be available to set up local clubs in other cities of Sri Lanka and to start a training programme immediately. This, too, will have the full support of the Minister of Education and may be carried out in school rooms in the various town and communities.

To end his visit to the training course for electronics and amateur radio, the Minister of Education paid a visit to the club station of the Radio Society of Sri Lanka, donated by the Government of the Federal Republic of Germany and presently located at the premises of the Sri Lanka Foundation Institute in Colombo. A contact with West Australia could be made at once and the Minister of Education had a few words with the operator at the other end — an Irishman who had emigrated to Australia nine years ago and he was obviously thrilled to have the rare opportunity to talk to a member of the Sri Lanka Government.

The amateur radio station of the Radio Society of Sri Lanka has made more than a thousand contacts so far. It is operated under the call sign of 4S7RS (Radio Society) and also by the German instructors who got an immediate clearance for their local licences and were allowed to use the same suffixes as at home. 4S7GS (DJ7GS) 4S7KL (DK8KL) 4S7WV (DJ3WV) and so on. All instructors will regularly be on the air until October 21st, 1978, as they will return to the Federal Republic of Germany on October 22nd. ■

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

11.10.78

The Editor,
Dear Sir,

Firstly, let me say that I support VK2YA's letter in October AR. It seems to be an unfortunate trend these days to make various grades of amateur licence easier to obtain by a general lowering of the technical standard by one means or another. To me, this is totally unacceptable not only in concept but also in principle. The concept would appear to be that if the amateur bands can be populated, let us do so with only minor consideration to the possible end result. Some time ago employers in the technical and engineering fields would give preference to an applicant who held an AOCP. Indeed, it was considered that if the applicant held an AOCP it indicated that the person had, apart from formal qualifications, a definite technical orientation with a desire to improve his/her technical knowledge which of course was of great benefit to the employer. These days, however, the story is somewhat the reverse. This is due to the rather primitive attempts at public relations advertising and the effective lowering of the technical standard of the various examinations in relation to the state of technical development within the communications industry. If you think this is just "waffle" I suggest you apply for a number of technical positions within various companies and government bodies. Fortunately, the door is not yet fully closed and some bodies will still value the AOCP as an added skill rather than a hindrance and an indicator of possible anti-social activities.

The reasoning of the principle would appear to be: "If it was good enough before, it should be good enough now". While I, in a lot of instances disagree with that little gem, the very act under which we are licensed dictates to a degree the technical level of the various exams. Any attempt to make these exams less demanding to suit the vast untapped reserves of future operators only depletes the standing of amateurs in the eyes of the all-important general public, who in a lot of cases already regard the amateur service as a high-powered form of citizens radio service made up of technical misfits who cause interference, and talk incessantly about the weather to faceless names around the world.

Further to this, I am in favour of "tick the box" answers for the NAOCP at hopefully a technically higher level than has been the norm lately, I am most definitely opposed to the same principle for the AOCP or LAOCP. While essay type answers require some extra effort to mark, what better way for a technically competent person to judge whether or not the person sitting for the exam has the right ideas and application in the examined subject? Granted that there are some people who find essay type answers very difficult due to exam nerves and the like and I can feel for those people as I have the same problem. However in our humble existence, there are people in all walks of life and vocations who just cannot make the grade required of them due to one reason or another and have to either live with the situation and accept their lot or find the required internal inertia to better themselves by application or further continued study. Of course, the above comments also apply to the proficiency test in telegraphy. Whilst CW to some may seem an outmoded form of communication, it is at least another and further qualification that an amateur can obtain for further **privileges** on our bands and generally requires a lot of hard work to gain a degree of proficiency in, but isn't that the very thing that makes the goals we strive for worth something something to be proud of?

In final comment on this subject let me say that it would be most certainly of very great benefit to all amateurs and the service in general, if we make a concerted effort to train our prospective amateurs to a higher level, with a better understanding of communication electronics rather than to lower our standards as a form of false economy in order to bolster our numeric strenght. Remember, CBers have number but amateurs have technical expertise, let us opt for quality, not quantity at a sacrifice.

Ian Foster VK3BLF, Nicholson 3882 ■

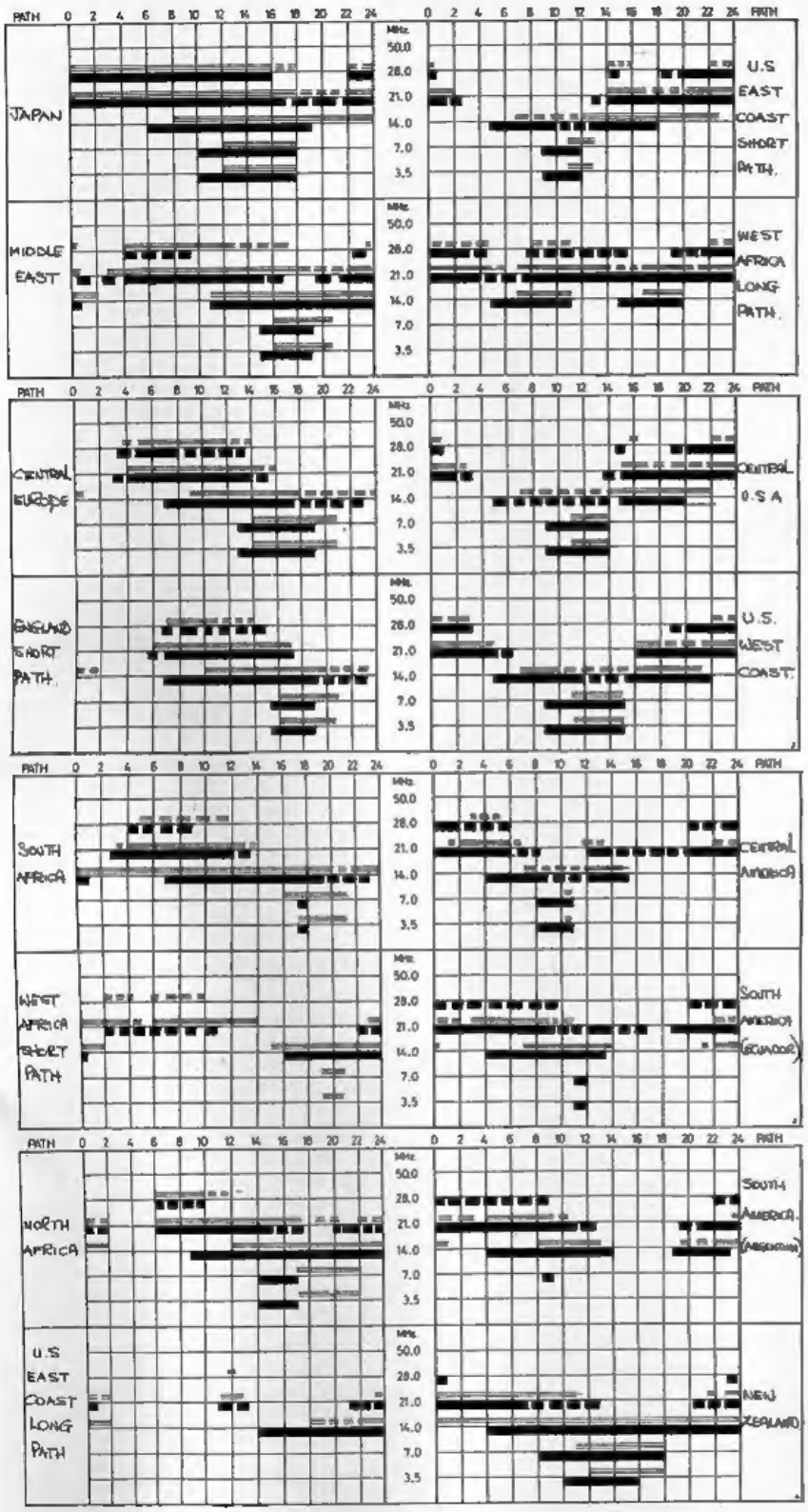
1979 SUBSCRIPTIONS

- **WIA Members are reminded that 1979 Subscription notices will be mailed out during December.**
- **1979 is the year of the great WARC when amateur radio and the WIA will need every ounce of support — so please arrange early payment of 1979 subscriptions when you receive the notice.**
- **Members wishing to be re-graded as pensioners — write NOW for clearance — write to your Division NOW.**
- **New members joining in 1978 — you will receive a notice for a pro-rata amount to render you financial to 31st December 1979. Early payment of this will avoid problems with AR.**
- **All members are reminded that AR address labels will be automatically suppressed for those still remaining unfinancial after a short period of grace.**
- **ADDRESS CHANGES, CALL-SIGN CHANGES, OTHER CHANGES:**

  Write NOW to WIA, Box 150, Toorak, Vic. 4132, advising all changes—please do not wait for subscription notice to reach you. ■

IONOSPHERIC PREDICTIONS

Len Poynter VK3ZGP/NAC



ALARA

AUSTRALIAN LADIES' AMATEUR RADIO ASSOCIATION

This month our series on licensed YLs goes to South Australia, to interview Jenny Warrington VK5ZBI. Jenny is one of the six licensed YLs in the State and the first and only lady Z call.

Jenny has not been licensed for long, but she is typical of many YLs either in, or trying to get into, amateur radio.

"I suppose I first became interested in amateur radio when Mike, my OM, got his limited call in December 1974, but it wasn't until January 1976 that he suggested that I should do the AOCP course at a local technical college. The first year the teacher was David VK5HP and the second year Murray VK5ZQ. I sat the theory exam three times and finally passed in August 1977.

Mike had passed his morse the same day I passed my theory and he got his full callsign in October; he became VK5AMU. In December the Radio Branch very kindly allowed me to take his old callsign, VK5ZBI.

On 5th December I first went to air, very, very nervously. I called a friend, Clem VK5GL, and within the first hour I had worked 10 local stations, including Myrna VK5YW. One of the OMs remarked that it was like working a new country. Apart from that night, my only other transmitting of note was the RD contest, in which I transmitted for 15 hours.

We have a Weston 551 2m transceiver, which Mike rashly said was my Christmas present in 1975. We don't have much HF gear, but when we have borrowed some I have enjoyed coming up on the ALARA net. **(What about a Christmas present for Mike?—Ed.)**

I hope to sit for my CW sometime next year. Mike has a regular practice session on Thursday nights, but at present I go to cake decorating classes on Thursday, so CW will have to wait.

My other hobbies include gardening, knitting, crochet and making terrariums. I have three children, two at high school, and one just started primary school. I help out at both school canteens, belong to the Uniting Church fellowship group and have just resigned as president of our Mothers and Babies Health Association. So I don't get on air very often".

In closing this month's ALARA notes we wish all our readers a happy Christmas and provide our hint of the month, from a YL who wishes to remain nameless.

Do you ever wish you had an intercom system to talk with the OM in the shack? If so, you will find that a mixmaster makes an extremely good intercom, especially if he works HF. A long sustained blast will make it impossible for him to work anyone, and thus force him to come in for tea. With practice short messages can be sent by morse code. However, with continued use, this system tends to be replaced by a conventional system, that can be more easily ignored.

73 from ALARA,
Heather Mitchell VK3AZU, Publicity Officer. ■

Jenny Warrington VK5BI

IARU NEWS

FOURTH REGION 3 CONFERENCE

The IARU Region 3 Association held its fourth conference in Bangkok, Thailand on 7th, 8th and 9th October. Member Societies represented by delegates were ARRL (USA — Pacific Territories) — HARTS (Hong Kong) — JARL (Japan) — MARTS (Malaysia) — NZART (New Zealand) — PARA (Philippines) — RAST (Thailand) — SARTS (Singapore) and WIA (Australia).

In addition, Vic. Clark W4KFC, Vice-President of IARU was present, as Noel Eaton VE3CJ, President of the IARU, was unable to make the journey to Bangkok because of ill-health. The four Directors of the Region also attended the Conference.

The Conference was formally opened by the Deputy Minister for Communications of the Royal Thai Government, Sriphoom Suknetr (HS1SS). The Deputy Minister assured delegates that the claims of the Amateur Service for the WARC would be carefully borne in mind by the Government of Thailand.

The Conference appointed the President of the host Society, RAST, Kamchai Chotikul HS1WR, as Honorary Chairman of the Conference and Fred Laun HS1ABD, Working Chairman. David Rankin 9V1RH, Secretary of the Region 3 Association, was appointed Conference Secretary and Noaki Akiyama JH1VRQ, was appointed Assistant Secretary of the Conference.

Each Society reported on the present position of WARC preparations in its country and considerable time was devoted to WARC generally. The Conference varied a number of previous policies adopted by the Region 1 and Region 2 Conferences this year. In particular, a policy not to seek change to Article 41 of the ITU Radio Regulations, was confirmed. That Article deals with the Amateur Service. The Conference adopted a paper relating to the Amateur Satellite Service submitted by JA1NET.

The President of the IARU had previously informed IARU Member Societies that Michael Owen VK3KI, would be a member of the IARU Observer Team. The Conference submitted two additional delegates from the Region to the President of IARU for his consideration, Shigetake Morimoto JA1NRET and David Rankin 9V1RH, who would each be available for approximately half of the ten week period of the WARC. In addition, Dick Baldwin W1RU, as Secretary of the IARU announced that Tom Clarkson ZL2AZ, had been invited to be present during the WARC as Special Adviser to the President of IARU.

A grant of additional funds to meet the cost of JA1NET and 9V1RH, as members of the IARU team to the WARC, was announced by Shozo Hara JA1AN, President of JARL and further funds were promised by PARA and WIA. Other business of the Conference included discussion of the Region 3 news, QRA locator systems, Project ASERT, the General Regulations of Region 3, better communications between the Regional organisation and Member Societies and many other matters.

Two Directors, Masami Saito JH3PJE and Tan Lian Huat 9V1OD, did not offer themselves for re-election and the four persons nominated were therefore appointed Directors of the Association, namely, Keigo Komuro JA1KAB, Jose Tupaz Jr. DU1JJT, Michael Owen VK3KI and Tom Clarkson ZL2AZ. David Rankin 9V1RH was re-appointed Secretary of the Region 3 Association.

The next Conference of the Region 3 Association will be in Manila in 1982, though the Directors were asked to evaluate the results of the WARC and advise Member Societies of the effect of those results.

The Fourth Conference of the IARU Region 3 Association was marked by the continuation of a spirit of mutual co-operation between the Member Societies and the continued recognition of the importance of the next years for the Amateur Radio Service. ■

HAMADS

- Eight lines free to all WIA members. $9 per 3 cm for non-members.
- Copy in typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142.
- Repeats may be charged at full rates.
- Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- QTHR means the advertiser's name and address are correct in the current WIA Radio Amateurs Call Book.

Due to early closing dates for copy with this and January 1979 issue, Hamads which normally would be published in this issue, have of necessity, been held over until our January issue.

We apologise to members for any inconvenience caused.

The January issue is expected to be published and delivered before Christmas.

Copy for the February 1979 issue is requested by 15th January 1979. The February issue will be published approximately 14 days later than usual.

FOR SALE

Hallicrafters FPM-300 250W input SSB/CW solid state Tcvr with 240W AC & 12V DC PSU built in, deluxe mobile mount included, owner's manual and Dynamic mike supplied also, $495. Hallicrafters HT-37 SSB Tx with antenna relay mike, owner' manual, uses two 6146B'S 100W PEP output 240-110 step-down transformer supplied, $225. 10-80m bands. Mosley TA-33 yagi with cable CDE rotator, as new, $375. Complete Yaesu FL-2100B linear, as new, $525. Collins 1-30 MHz Communications Rx, superb radio, all the usual Collins features standard, $650. John Berry. Ph. (02) 389 6979 AH — (02) 389 6455 bus.

Swan 240 with power supply and spare O/P valves, in working order, $200. Grid Dipmeter LDM615, as new, $70. VK3AVA, 6 Brennan St., McKinnon, 3204. Ph. (03) 578 2058.

Swan 350, with AC supply, $350; Swan 240 DC/DC supply $240; HT37 Hallicrafters Tx, $190; Plessey B240 T/R, 23-38 MHz, AC, $80; 432 Tx ATV and sub carrier generator, $100; MR20 HI Band on 3 and 40, $30; 2 in. CRO, $50; Audio Speech Processor, $40; SWR Bridge, $15. Lots of other gear and bits and pieces. Send SAE. Service manuals with all equipment and all 100 per cent and working OK. No reasonable offer refused. VK2AJY, QTHR.

Kenwood R-599 Rx, covers all amateur bands 1.8 to 147.400 MHz, SSB, CW, AM and FM, 240V AC or 12V DC, with operating manual, $300. VK4QF, QTHR. Ph. (07) 370 8765.

WANTED

Drake RC4 Rx. VK3LC, QTHR. Ph. (03) 509 2556.

Has someone a "Q" multiplier? Transistor model or circuit details for same. Please contact A. Harrison, Nhill, 3821. Ph. (056) 23 2450.

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(Editor's Note: The power quoted exceeds the Australian legal limit.)

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SILENT KEYS

It is with deep regret that we record the passing of —

WALTER MARTIN PETERSON VK6LW

It is with deep regret that we record the passing of Wally VK6LW, on August 10th 19878, after a long period of disability.

Wally was licensed in 1937, and worked for a number of Perth commercial radio stations, finishing with 6KY as Chief Engineer in 1955.

He was a member of the Institute of Radio Engineers.

Wally was involved in early experimentation with frequency modulation broadcasting, and was well known for his fine home brew AM station.

In 1966 he suffered a severe heart attack and stroke which left him partially paralysed, and with a speech problem.

Until his death this year, he operated on 2 metres.

From 1955 until his forced retirement he was a technical correspondence teacher, and was dedicated to the welfare of his many students to whom he gave many hours of extra tuition.

He is survived by his wife and four children. ■

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